DuVersity 40 2015

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DYNAMIC STRUCTURES OF AWARENESS

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Talk given at ANPA (Alternative Natural Philosophy Association) August 13th, 2015

My title was chosen to suggest some guiding ideas. The first word 'dynamic' to suggest that movement is primary. The second, 'structures', to imply articulation: as in being composed of interlocking parts and also related to language and expression. The word 'awareness' simply points to the universal sense we have of not only things going on but also that we register or echo them in us. By associating it with the other terms I wanted to imply that it was not just a static state but allied to movement.

Our given situation is one often expressed by the phrase *being in a body*. The phrase implies a belief that there is something in the body which is not just the body. This can be described – and hence felt and seen – in many ways. For example, that there is some other kind of body inside this obvious one. This relates to the common traditional belief of a 'soul' somehow inside the body. A different idea is that what is in the body is its movement or animation, which Aristotle ascribed a 'form' (as in his duality of Form and Matter [*ref 1*]). The view of our inwardness as a process, a movement, is found in Heraclitus [*ref 2*] . Another idea divides us into two parts, one of which is the body and the other mind or consciousness, rather as Descartes says [*ref 3*].

These ideas and many others are ways or forms of articulating the 'given sense' of being in a body. Every form has its own merit and limitations and each can make a contribution to understanding.

I want to consider thinking in relation to the body. At first impression, as Descartes says, thinking is unlike the body and is, in fact generally still viewed as some process that operates somehow *through* the body rather like, in a common contemporary simile, software runs in a piece of hardware. Reflection, however, can lead us to contemplate the idea of thinking must be as bodily as breathing and digestion are. This was Bohm's approach as

discussed in his book *Thought as a System* in which he considers thinking, feeling and moving as a system, making together a whole. [*ref 4*]

To have the idea that thought is physical is one thing; to experience or realise it is another.

I want to introduce the term 'experient' to signify a complement to experiment. The latter is outer-directed into the external world and uses instruments to make measurements. An experient, on the other hand, is an *operation in experience*. What this means is that we can do something to change or refine how we see ourselves. An experient is not a concept but a realisation in action. Both experient and experiment are active but in quite distinct ways.

Bohm drew attention to the intrinsic sensory ability we have called *proprioception*. This is the sense that tells us what our bodies are doing – where our feet, arms and head are in space – without us having to look in a mirror. With eyes closed we can tell how our bodies are disposed. Bohm sought to extend this type of inner cognition to thought. He spoke of a proprioception of thought. The underlying reason for this was probably to allow him to discuss the reform or redemption of thought that deeply concerned him. This was to pass from its present incoherence – that produces hate, confusion and violence – to intelligence, a topic he often discussed with Krishnamurti as in the dialogues *The Ending of Time*. I suggest that a contribution to this sort of transformation of thought can begin with realising that proprioception in its ordinary bodily sense can be *developed*. In developing it, it naturally extends to the total system we call ourselves. It leads to insight.

[We then did some exercises on this]

Proprioception can be exercised. It requires action. It requires dealing with the body in a dynamical way. In working with proprioception, we engage more with the body than we usually do in life and treat it not as a thing but as a movement.

I can here briefly refer to Bohm's idea of *holomovement*. As I think we can generally agree, there is a habitual mindset most of us have in which we regard existence as consisting of things that move about and interact. But existence may be regarded more as a structure of movement, a whole movement, out of which are derived what we call things.

We can put it tersely: *there are not things that move but moves that thing*.

[Members of ANPA will be able to link this with, for example, Kaufman's self-referential mathematics and the idea of eigen forms *ref 5*. Also, the principle of 'structured movement' was expressed by Simone Weil in her dissertation on Descartes *ref 6.*]

Here I want to remark that physics must obviously rely on being in a body. For some of you this may be far from obvious or even wrong. I can only suggest that such qualities noted in some physicists such as 'physical intuition' must surely stem from some relatively unmediated insight from the body itself. Whatever it means to be in a body it must include an *intimacy* that makes our bodies very special to us.

David Hume argued that physics as practised drew on physical experience for its basic concepts. For him, this meant that science must be subject to the limitations and subjectivity of bodily experience. Newton, of course, eschewed the subjective–physical – what he called the occult or hypothetical – in favour of abstract relationships. This is not the place to discuss philosophy of science in any depth. It is just important to keep in mind the prospect – as Feynman would certainly agree – that science has no place in saying what things are; it can only deal in relationships such as between movements.

This might make it seem we can forget the body and keep to abstractions. But what is the value of the view – which is being increasingly adapted as a vantage point – that we are in *embodied* cognition? [ref. 7] That is to say, whatever we can think *must* arise out of our existential concrete reality.

A pivotal idea is the abstract and the concrete are, at a certain level, non-distinct. In other words, the dynamic of abstract thinking and the dynamic of active movement must be of the same nature. How could this be possible?

To return to Bohm. He very much emphasised the difference between thought and thinking. Thought is memory. We are inhabited by and run by thoughts. This is evident, Bohm would say, everywhere in the world of human conduct. Our thoughts are contradictory, mixed and producing confusion. Thinking however is not confined to memory.

The same consideration can be applied to bodily movement. Our movement (in the world) is composed of a set of typical or recurrent postures. We walk in a certain way, talk in a certain way, and sit in a certain way. These ways are finite and limited. Most people's movement exhibits considerable waste of energy.

This leads us to Gurdjieff [*ref.8*]. Bohm knew about Gurdjieff's ideas though he denied this when talking to his biographer David Peat [private correspondence]. From what I know of Bohm's background I guess that he wanted to find a way of talking about what Gurdjieff addressed in his own language, to preserve and support his attitudes or worldview which centred on undivided wholeness.

Briefly, Gurdjieff drew attention to our limited repertoire of postures and movements and said it included feelings and thoughts as well. Thoughts, feelings and movements are linked together in a mechanical way. [*ref 9*] But beyond this mechanical system it was possible to achieve a non-mechanical one. Whereas Bohm could never undertake anything physical to transform or change the mechanical repertoire, Gurdjieff devised an appropriate method known sometimes as *sacred gymnastics*. The rough meaning of this phrase is that the intention is not physical fitness but awakening to some 'inner' existence.

Both Gurdjieff and Bohm present us with a vista of ourselves as a composite totality, a collection of habits. These composites work well enough to enable us to live and go about our business. But they include contradictory elements, disjunctions, blank spots and so on. As I said, the way we move about in life creates many tensions that lead us to wasting energy on even the simplest tasks. The less obvious example is how we might harbour quite contradictory impulses - such as saying and doing opposite things – without realising this is the case.

There is an impulse to minimise awareness of contradiction – because it is disturbing – but many creative methods do the opposite – that is, they increase contradiction.[Example of TRIZ *ref 10*] The word 'contradiction' is used here in a rough sense to embrace all kinds of conjunction of contrasting elements or dualities. In other words, faced with the prospect that we are just a collection of mechanisms, habits or thoughts the way through might be to activate or even amplify what is contradictory, or the clash of distinctive elements, and process what ensues.

The activation and bringing together of distinct elements need not be felt as painful – it might even have a sexual and joyous kind of feeling – but it has to be done intentionally. A consequence is that it appears, and is, *artificial*. It is done only because we decide to do it. It will not come about naturally; what feels 'natural' to us is the familiar or mechanical.

I will try to clarify the modus operandum. For the active realisation of the body in thinking, we need clarity *in bodily terms.* Physical clarity is a starting point for what might develop for feeling and thinking in their turn. Clarity in bodily terms consists of taking definite, precise postures or gestures. To do this we sharpen proprioception, because it is deeply involved in establishing a definite posture which can be taken exactly at will.

Often, geometrical forms are used because these are easier to discern then more complex ones. What is most important is that we work to be able to improve the gestures which we have decided to take. For this we must be aware of differences between the intended gesture and the actual posture we take. We practice taking a set of postures – say, with just the arms. It takes time and effort to be able to take them exactly. It is the development of this that is of value, rather than any endpoint or 'success'.

When we take a series of postures there are, of course, movements between them. This introduces another level of attention. It can only be indicated here but awareness of a 'right transition' between postures involves a

deeper consciousness; the first step of which is to recognise that largely we have little or no awareness of transitions, of the in-between.

Since a series of movements takes place in time, we need to establish ourselves in time. This is done by rhythm. Bohm seems to have had no idea about this: his proprioceptive model was spatial in character and as far as I know he had little sense of music, his interest lying more in the visual arts. It is interesting to note that humans are just about the only species that has a sense of rhythm.

[We practised a basic rhythm 1 – *2-3-4* (the letter B in Morse code) to echo quaternions (one real and three imaginary) and dimensions (e.g. one of time and three of space)]

Rhythm introduces timing and timing is required aspect of precision in movement: a series of postures are taken at their intended times. The taking of a posture at the intended moment is a subtle thing: it is to be done as speedily as possible without any force or jerking. The requirement of precision in time and space necessitates a development in awareness. First of all, simply because the person has not previously been aware of where precisely they are in time and space. Secondly, the requirement of precision unfolds as more work is done, becoming ever more subtle.

Since we have invoked time and space we play with gestures symbolising these and add ones symbolising mass and charge – in honour of Peter Rowland's talk [*ref 10*].

Seeking gestures for Time and Charge

Rhythm is centred in the legs. Gestures using the arms are more expressive, linked to feelings. But just as distinct patterns of movement they are independent. For example, the arms can move in flowing patterns in contrast with a staccato movement of the legs. This contrast in itself can be challenging, because the two patterns of movement seem to interfere with each other. But what comes into play can be described as a 'dividing of attention' such that the person can embrace both the flow of the arms and the linear marching of the legs *at the same time*. Instead of being in conflict, they can be experienced as complementary.

Further elements can be added. The head can have its own pattern of movement distinct from that of the arms and legs. Then there can also be displacements wherein individuals move from their spot in patterns relative to other people. In fact, the practice known as Gurdjieff's movements is for groups and makes much use of displacements such that people interweave with each other, exchanging places and postures in symmetries and rotations.

The building of complexity and movement is intentional. It should neither be too much or too little, depending on the person. It draws on instruction from outside. Usually, there is a teacher who instructs a class; it is difficult for an individual to create sets of postures to challenge herself, though not impossible.

Combining distinct elements can be felt as disturbing [this has some similarities to how dialogue is experienced, when different people are producing a combination of viewpoints]. This signifies a release of energy. I am using the term 'energy' here somewhat in the sense of *free energy*, as energy not being used in a habitual function. The experience and processing of this energy is up to the individual. It can, so to say, go up or go down. To go up means to realise a higher level of organisation, marked by a sudden sense of wholeness and simplicity. What was many is now one. To go down means to get reactive and upset – with oneself or with the instructor or with one's neighbour, et cetera.

The general approach may be summarised thus:

First a recognition of our ordinarily state of existence as confused and contradictory

Second, an amplification of this recognition by doing something, starting in the body

Thirdly, creating an experient by building a movement composed of many distinct elements

Fourthly, going through the energy generated to another level of experience in which there is no difficulty or conflict.

The last stage will only be temporary: it is to enable us to understand. There are three phases:

1. to do
2. to experience
3. to understand

The method belongs to the class of experients called *intentional suffering.* It is reflected in the famous line by T. S. Eliot: *to grow well our sickness must grow worse.* [*ref 12*]

What we can experiment and experient with here is just the rudiments of what is involved in the Gurdjieff movements. Gurdjieff composed hundreds of dances, each with its own special music and many of great beauty. They enable people to come under the attractor of harmony and beauty. Thence: to *under-stand.* [ref. 13]

References

Ref. 1 Aristotle *ON THE SOUL*

Among substances are by general consent reckoned bodies and especially natural bodies; for they are the principles of all other bodies. Of natural bodies some have life in them, others not; by life we mean self-nutrition and growth (with its correlative decay). It follows that every natural body which has life in it is a substance in the sense of a composite.

But since it is also a body of such and such a kind, viz. having life, the body cannot be soul; the body is the subject or matter, not what is attributed to it. Hence the soul must be a substance in the sense of the form of a natural body having life potentially within it. But substance is actuality, and thus soul is the actuality of a body as above characterized. Now the word actuality has two senses corresponding respectively to the possession of knowledge and the actual exercise of knowledge. It is obvious that the soul is actuality in the first sense, viz. that of knowledge as possessed, for both sleeping and waking presuppose the existence of soul, and of these waking corresponds to actual knowing, sleeping to knowledge possessed but not employed, and, in the history of the individual, knowledge comes before its employment or exercise.

Ref. 2 Heraclitus ANCIENT THEORIES OF SOUL Stanford Encyclopaedia of Philosophy

Heraclitus thought that the soul was bodily, but composed of an unusually fine or rare kind of matter, e.g. air or fire.

This world-order [kosmos], the same of all, no god nor man did create, but it ever was and is and will be: everliving fire, kindling in measures and being quenched in measures.

Ref. 3 Rene Descartes MEDITATIONS ON FIRST PHILOSOPHY

"I am not a collection of members which we call the human body: I am not a subtle air distributed through these members, I am not a wind, a fire, a vapour, a breath, nor anything at all which I can imagine or conceive; because I have assumed that all these were nothing. Without changing that supposition I find that I only leave myself certain of the fact that I am somewhat."

Ref. 4 David Bohm *THOUGHT AS A SYSTEM* *p. 122*

Normally this quality of proprioception exists for the body. And one of the things we need to see is the relation between the intention to move and the movement - to see immediately that relation, to be aware of it. We're usually not very aware of this intention to move, but we can be. If somebody wants to make his movements more accurate or skilled he will find his intention is not that well defined - he doesn't move the way he hopes. Somebody who wants to play the piano, for instance, has to learn that relation better so that his fingers will do what he wants them to do. So a greater quality of proprioception occurs in that regard.

The essence of the movement may be in the intention to move, which unfolds into the whole movement. For example, we knew of a man who had a degenerative disease and was unable to move at all. He could barely talk. And yet he taught movement in a university. The question is how he could do it. You could guess that, being very intelligent and unable to move, he was somehow much more aware of the intention than we are, because we focus our attention on the result. Therefore, getting the intention right may be very crucial to making the movement right. Thus there is some relation between the intention to move and the movement; and there is something in between that you are vaguely aware of, which is proprioception.

There is one point I would like to bring up now which is related to this. I'm going to say that thought is a movement - every reflex is a movement really. It moves from one thing to another. It may move the body or the chemistry or just simply the image or something else. So when 'A' happens 'B' follows. It's a movement.

All these reflexes are interconnected in one system, and the suggestion is that they are not in fact all that different. The intellectual part of thought is more subtle, but actually all the reflexes are basically similar in structure. Hence, we should think of thought as a part of the bodily movement, at least explore that possibility, because our culture has led us to believe that thought and bodily movement are really two totally different spheres which are not basically connected. But maybe they are not different. The evidence is that thought is intimately connected with the whole system.

Ref. 5 Louis Kauffman FORMAL SYSTEMS – EigenForm

http://homepages.math.uic.edu/~kauffman/Eigen.pdf

Ref. 6 Simone Weil SCIENCE AND PERCEPTION IN DESCARTES

And in order to represent what I am in relation to the world, I will suppose that, in opposition to the single movement that I control, the world offers an infinitely complex movement that is to motion in a straight line what the number the mathematicians call infinity is to the number one, the movements that correspond to the oblique line, the circle, and the ellipse being like the numbers two, three, and four. But the only way I can clearly conceive of this infinitely compounded movement is to conceive of an indefinite number of impulses in a straight line that are combined, and to conceive of each of them separately, on the model of the motion that I have at my disposal. I will suppose there is an indefinite quantity of simple motions in the world, and I will define each of them, like my own, by a straight line. That is, insofar as the direction of the straight line is changed in the world, I will suppose that it is distorted, twisted out of shape by its countless sisters. I will also define this motion as uniform; in short, I will suppose that the initial impulse is reproduced endlessly, always in the same form. In this way the part played by the world is reduced to that which distorts, halts, accelerates, or retards a straight and uniform motion. I can then reduce this part again by considering it afresh as a straight and uniform motion. In this way I can analyze the

world endlessly. It is not that I hope to achieve a result; it is the nature of my condition that I can never exhaust the world.

Ref. 7 Varela THE EMBODIED MIND

Ref. 8 Gurdjieff (1866 – 1877? – 1949) was an 'esoteric teacher' born in Armenia who taught in Russia and then Europe and the USA. He created music, dances and a series of writings. His basic thesis was that people were in effect machines but some could, under certain circumstances and through sustained efforts, 'wake up'.

Ref. 9 G. I. Gurdjieff quoted in P. D. Ouspensky *IN SEARCH OF THE MIRACULOUS* p. 352

"The character of the movements and postures in every epoch, in every race, and in every class is indissolubly connected with definite forms of thinking and feeling. A man is unable to change the form of his thinking or his feeling until he has changed his repertory of postures and movements. The forms of thinking and feeling can be called the postures and movements of thinking and feeling. Every man has a definite number of thinking and feeling postures and movements. Moreover moving, thinking, and feeling postures are connected with one another in man and he can never move out of his repertory of thinking and feeling postures unless he changes his moving postures. An analysis of man's thoughts and feelings and a study of his moving functions, arranged in a certain way, show that every one of our movements, voluntary or involuntary, is an unconscious transition from one posture to another, both equally mechanical.

"It is illusion to say our movements are voluntary. All our movements are automatic. Our thoughts and feelings are just as automatic. The automatism of thought and feeling is definitely connected with the automatism of movement. One cannot be changed without the other. So that if a man's attention is concentrated, let us say, on changing automatic thoughts, then habitual movements and habitual postures will interfere with this new course of thought by attaching to it old habitual associations.

"In ordinary conditions we have no conception how much our thinking, feeling, and moving functions depend upon one another, although we know, at the same time, how much our moods and our emotional states can depend upon our movements and postures. If a man takes a posture which with him corresponds to a feeling of sadness or despondency, then within a short time he is sure to feel sad or despondent. Fear, disgust, nervous agitation, or, on the other hand, calm, can be created by an intentional change of posture. But as each of man's functions, thinking, emotional, and moving, has its own definite repertory all of which are in constant interaction, a man can never get out of the charmed circle of his postures.

Ref. 10 *TRIZ* (acronym for Russian title which translates literally as *theory of the resolution of invention-related tasks*) is a method of innovation created by Genrich Altshuller (1926-1998) who realised that "a problem requires an inventive solution if there is an unresolved contradiction in the sense that improving one parameter impacts negatively on another" (Wikipedia). Focus on, amplification and analysis of the 'basic contradiction' is a crucial element of TRIZ.

Ref. 11 Peter Rowlands HIERARCHY OF SYMMETRIES ANPA 2015

Ref. 12 T S Eliot *EAST COKER* (Four Quartets)

Our only health is the disease

If we obey the dying nurse

Whose constant care is not to please

But to remind of our, and Adam's curse,

And that, to be restored, our sickness must grow worse.

Ref. 13 Margit Martinu You Tube interview and Dullemen performance

https://www.youtube.com/watch?v=FRXcft8Cgrc; **Wim van Dullemen You Tube extract from festival in Konya**

The Rascoorano of Ken Pledge

Anthony Blake

Gurdjieff spoke of death as *sacred rascoorano*. The meaning of this may be obscure. It strikes me though as a real phenomenon: 'something' is released in a death that is like a spark that awakens and reveals. This morning I was realising that Ken's death – like that of others I have known – had created a kind of 'inner probe'. It was of the nature of a truth-probe, in that it raised for me the deepest issues of what the work means and what JGB's work was for – and what his work really was – and hence what I and others might be engaged in (or missing the point of).

As most will know, JGB was immersed in science and ran a research institute concerned with fuel technology. He was experienced in handling creative people. In the early days at Coombe Springs he had some big brains around him, such as Foster, Thring and Brown. After going through the dramatic events of re-contacting Gurdjieff, the split with the French 'mafia' led by Madame de Salzmann, the eruption of Subud and his conversion to Catholicism, JGB was starting again and re-opened his quest for a marriage of Gurdjieff's ideas with modern science. This time, he had some brains around him, but they were relatively 'uncooked'.

In particular, there was a 'gang of four': Bortoft, Hodgson, Pledge and myself. (A fifth, Simon Weightman was in the wings but he was not centred on science as we were). Now two of us are dead. We were quite disparate in temperament. But we all admired JGB and were fans of 'The Dramatic Universe'. We engaged with JGB in various ways. For example, I was of some assistance in the writing of Volumes III and IV. There was the remarkable project on an 'Objectively Complete Language' involving JGB, Pledge and Bortoft (which John Dale laboured recently to go through and correct). Hodgson took the systematics into the business world. Then there was the journal *Systematics.* Meanwhile we were engaged in the various practices such as movements and JGB was still on his 'vision quest' as I might call it and was to meet with the Shiva Puri Baba and Idries Shah.

JGB took us into the world of educational research (ISERG – integral science research group) studying curricula. We used to meet in a student basement in Kensington, going down steps for our meetings into a room often filled with the sound of a double bass and using an adjoining room to go 'for a shout' – i.e a Subud *latihan* – before settling down to mysteries of the universe. The physicist David Bohm came a few times!

I mentioned our diverse natures. Hodgson went into management circles but also met with cyberneticists such as Stafford Beer and, I believe, Bucky Fuller. Bortoft however was moving away from JGB and eventually left him and attached himself to Idries Shah. Temperamentally he was alienated from systematics and centred himself in hermeneutics. Pledge went for mathematical investigations. I was more interested in systematics as a possibly transformative process. Relations were not always harmonious between us but we had the boon of a common language and a mentor of wide encompass.

Ken at one time was warden at Coombe Springs. I remember well how he had the traumatic experience of showing a visitor round the grounds and coming across the body of a man called Boris, a one-legged veteran of the First World War) who had committed suicide in one of the ponds. Ken left Coombe to become a 'demonstrator' in the science labs of a college and there developed his keen capacity for precision of thought allied to precision of machinery and mathematics.

At one time three of us – Hodgson, Pledge and myself – lived in the 'Fishbowl'. This was a building once containing labs. The rooms were just partitioned off sections (any heat in the rooms just escaped into the corridor) and were bitterly cold in Winter. I mention the dwellings because Ken was next door to me. At one session of ISERG I had proposed an 'octave' of visual perception. For some reason this got into Ken in a ferocious way. For two nights he did not sleep. What he came up with developed later in his masterly 'Structured Process in Scientific Experiment', still the ONLY example of an exact, technical treatment of the enneagram.

Ken of course was also the only person who made something of the higher dimensional geometry that Bennett outlined in an appendix to Volume I of the DU. JGB with Thring and Brown had managed to get a paper published in the Royal Society but it was never taken any further by them. Ken was a stickler for precision. When I wanted to read one of his papers on the mathematics of the geometry he insisted I take a test on Tensor Calculus. I remember that he gave me 7 out of 10 but allowed me to see the paper! He was always insistent that people should know something and study and not just expect to be fed. When I got him to give a seminar at Claymont he tried to insist that only those with the equivalent of what in the UK was called 'O' level maths should attend. I very much approved of this.

The 'diaspora' of the four of us meant that we were hardly in contact. I feel I did try to keep in touch with the others but there were barriers. Hodgson and Bortoft had new affiliations and were not interested in communicating with me and Ken was becoming increasingly reclusive. On its small scale this reflected what always tends to happen in any 'movement' or initiation of ideas.

He did not publish anything with the exception of his excellent edition of JGB's book *Transformation* and, as I have just noticed, he was involved in a new edition of *Gurdjieff – Making a New World.* What is going to happen with his numerous papers is very uncertain. Who can deal with them?

I have said nothing about Ken as a person. Many will have fond memories of him. For me, his rascoorano has been a jolt to my consciousness and has amplified and awakened critical questions of what 'it was all about'.

Fairly synchronously, I recently unearthed a paper by Ken about JGB's 'cosmodesic hypothesis' which was the basis of the multi-dimensional geometry. I have only his Introduction, but it is fascinating and will appear in the next issue of the *DuVersity Newsletter*. [see below] It is fascinating not only for its surface content but also for its manifestation of Ken's love for JGB that, however, never prevented him from making criticisms. Ken was centred in the scientific attitude and was almost alone in seeking to understand and further the mathematical physics that underpinned *The Dramatic Universe*. I often as not disagreed with him but that is an essential part of the process.

But what was or is this process? What is there to understand? Who or what is in charge? May Ken's death serve consciousness.

The Science of The Dramatic Universe

J G Bennett was not alone in his search for a cross-disciplinary integration of the sciences that would provide a 'cosmic view' of the universe in which humans exist. An example is J D Bernal (cf. *The World, The Flesh and the Devil,* 1929). Another is Douglas Harding's *The Hierarchy of Heaven and Earth* 1950 (see https://www.youtube.com/watch?v=m9rRoxz-L0Y for Harding explaining his ideas) that Bennett refers to in Volume I of his magnum opus. The main influence was, however, P D Ouspensky, who gave Bennett the idea of six dimensions.

"Every moment of time contains a certain number of possibilities, at times a small number, at others a great number, but never an infinite number. It is necessary to realize that there are possibilities and impossibilities. I can take from this table and throw on the floor a piece of paper, a pencil, or an ash-tray, but I cannot take from the table and throw on the floor an orange which is not on the table. This clearly defines the difference between possibility and impossibility. There are several combinations of possibilities in relation to things which can be thrown on the floor from this table. I can throw a pencil, or a piece of paper, or an ashtray, or else a pencil and a piece of paper, or a pencil and an ashtray, or a piece of paper and an ash-tray, or all three together, or nothing at all. There are only these possibilities. If we take as a moment of time the moment when these possibilities exist, then the next moment will be a moment of the actualization of one of these possibilities. A pencil is thrown on the floor. This is the actualization of one of the possibilities. Then a new moment comes. This moment also has a certain number of possibilities in a certain definite sense. And the moment after it will again be a moment of the

actualization of one of these possibilities [...] But all the possibilities that have been created or have originated in the world must be actualized [...] The sixth dimension is the line of the actualization of all possibilities."

P. D. Ouspensky, *In Search of the Miraculous*

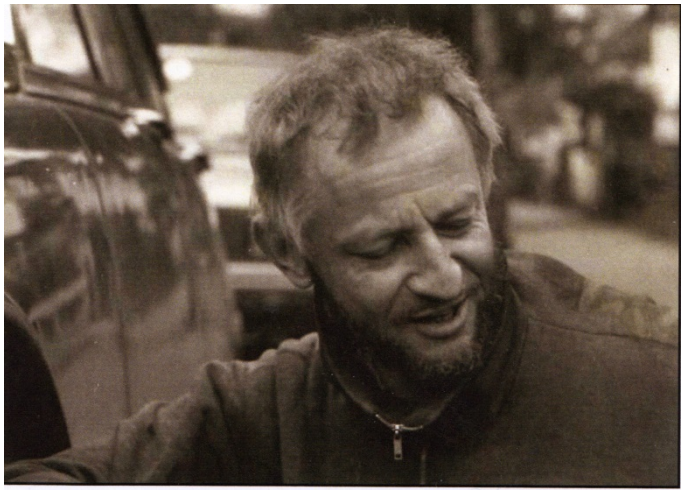
Bennett had a mathematical background (he was grandson of Cayley) and was versed in relativity theory and the emergence of quantum mechanics. This led him into a *geometrical* approach. In essence, instead of taking 3 dimensions of space and 1 of time, he worked with the complement: 3 dimensions of time and 1 of space. Both come from the pattern 3 + 1 = 4. Ken Pledge was probably the only person to tackle the mathematics of the geometry Bennett introduced in Volume 1. This was restricted to the study of a fifth dimension Bennett called *eternity.* Some physicists such as Kaluza and Klein introduced a fifth dimension to unify gravitation and electromagnetism, which is now considered by some to be a precursor of string theory. But Bennett's purpose was mainly to find a way to get a physics that would support his spiritual view of the universe as derived from Gurdjieff. Eternity would be the shadow of BEING and hyparxis the hint of WILL. It was highly unlikely that his ideas would be taken up within the scientific community, however veiled they might be.

In the paper that follows we have just the prelude to a more mathematical part. What Pledge writes amounts to an apologia for Bennett's work. Just as earlier versions of *The Dramatic Universe w*ere apologias for Gurdjieff's idea of cosmic laws. In my early paper A CRITICAL ESSAY ON THE HISTORY OF SCIENCE A. G. E. Blake Systematics Vol III, No. 1 I discussed the inevitable duality of mainstream and alternative science reasoning that alternative science is usually not superior to mainstream science but simply a playing with speculations. It is highly unlikely that spiritual ideas will ever be completely or properly mapped into physical science.

The critical idea in the cosmodesic hypothesis stems from the early declaration of Gurdjieff that we are *third force blind.* We can construct a 'true' geometry consistent with a 'universal observer' in which there are no forces as such only patterns. This viewpoint actually corresponds with the world of *demiurgic intelligence*. It makes perception primary.

SKEW-PARALLELISM: THE COSMODESIC HYPOTHESIS

K. W PLEDGE



Introductory part of essay Skew-Parallelism: The Cosmodesic Hypothesis *circulated c. 1980*

STATEMENTS RELEVANT TO THE EXPOSITION

"Let us imagine, with Messrs. Kaluza and Kramers, that, in order to represent the series of events in the Universe, it is necessary to employ a manifold of five dimensions, that is, a fifth dimension, corresponding to a fifth variable x , is to be added to space-time. The variations of this fifth variable completely escape our senses, in such a way that two points of the Universe corresponding to the same values of the four space-time variables but to different values of the variable x are indistinguishable from one another. We are, as it were, shut up in our manifold of four-dimensional space-time, and we perceive only the projections onto this space-time of

these points in the Universe of five dimensions." *Louis de Broglie. L'univers a Cinq Dimensions et La Mecanique Ondulatoire.* La Journal de Physique et Le Radium

"The natural order presents itself to us in our experience concretely as will actualizing in function through the mediation of being. This is the experience of phenomena: we witness them and we seek to know, them. The reduction of phenomenon to fact and the representation of fact by the aid of mathematical language and geometrical constructions are undertaken in quest of knowledge. The order we thus discover, as we improve our instruments of observation and means of representation, is the projection of regularities that we believe to be independent of the three stages of reduction, that is:

Experience → Phenomena

Phenomena → Fact

Fact → Representation

Because of this independence, the source of which lies in the homogeneity and self-consistency of the natural order, the knowledge we acquire can lead to fresh functional adaptations in our relationship to our own world. These adaptations complete the cycle and serve to verify the soundness of the path we have taken." *J.G.Bennett. The Dramatic Universe, Vol. 1*

"Five windows light the cavern'd Man: thro' one he breathes the air,
Thro' one hears music of the spheres, thro' one the eternal vine
Flourishes that he may receive the grapes, thro' one can look
And see small portions of the eternal world that ever groweth,
Thro' one himself pass out what time he please; but he will not,
For stolen joys are sweet & bread eaten in secret pleasant." *William Blake. Europe – A Prophecy*

ABSTRACT

A simple three-dimensional re-presentation of J.G. Bennett's long-disregarded demonstration (1949) that the geometrical notion of a skew-parallel vector in a flat pseudo-Euclidean manifold, when

(a) applied so as to bring out the implications of a conjecture by de Broglie regarding the imperceptibility of changes occurring in a fifth dimension, additional to those of space-time, and

(b) coupled with the hypothesis that the paths of bodies in 'unconstrained' motion in the five-dimensional manifold are 'cosmodesic' straight lines (thus generalizing Newton's First Law),

(c) leads to the conclusion that three distinct types of motion will occur in the space-time of an 'imperceptive' observer, when the three parameters of his geometry are considered independently, and that such an observer will infer them to be either

> (i) uniform, and in accordance with Special Relativity, or (ii) motion in a gravitational field, or (iii) motion in an electric field according to the parameter concerned.

When all three parameters are considered together, the scheme thus provides a completely self-consistent, Universally relativistic, Unified Field Theory. It also presents a simple interpretation of electric charge, as a physical quantity bearing, with regard to the fifth dimension, a relation corresponding to the relation that mass bears to time; and electric potential-difference as the divergence from true parallelism of the unit-vector defining the 'imperceptive' observer's 'own' direction in the imperceptible dimension from the 'Universal' direction along that dimension.

INTRODUCTION

Louis de Broglie was one of the greatest intuitive physicists there has ever been. His daring conjecture as to the wave-nature of particles gave birth to wave mechanics and hence to quantum mechanics which, with Special Relativity, is one of the two theories of modern physics that have come to be regarded as fundamentally valid. de Broglie's almost throwaway remark concerning the imperceptibility of the fifth dimension was made in regard to Kaluza's theory, which adopts a Riemannian metric.

In the 1930's the success of Einstein's General Relativity in predicting the bending of light-paths passing near the Sun, and removing the anomaly of the precession in the orbit of Mercury, made a Riemannian metric seem inevitable. It was left to J. G. Bennett to show that a simple flat quasi-Euclidean metric, coupled with de Broglie's hypothesis of the imperceptibility of the fifth dimension, could enable a five-dimensional field theory to be constructed which would easily do what Einstein himself was never able to extend General Relativity to achieve. It could provide a framework in which gravitation and electromagnetism are seen to emerge naturally as simple consequences of the imperceptibility of the fifth dimension.

Bennett went by the book. He published his five-dimensional theory by a paper in *Proc.Roy.Soc.* in 1949.[2] But here he came up against a barrier. For Bennett had been working away, evolving his theory, in virtual isolation from the rest of the scientific community, for many years, and the scientific community, like any other, tends to be suspicious of outsiders. The scrutineers of the Royal Society rejected his first-presented paper. Bennett went away and re-wrote it (with the assistance of R.L.Brown and M.W.Thring).

Again it was rejected. Bennett re-wrote it again. Again it was rejected. Again Bennett re-wrote it. At last it was accepted. But, in seeking to meet the demands of the Royal Society's scrutineers for mathematical rigour, the paper had, by this time, become an exposition of such monumental obscurity as to be almost unreadable. At any rate, no one seems to have made the considerable effort required to read it. In a recent survey[22] of Kaluza-Klein theories, it is not mentioned.

After this attempt to go by the book as regards attempting to feed his ideas into the awareness of the scientific community at large, Bennett decided to go by another book. And so he *wrote* a book in which he published, not only a brief, simplified account of his Unified Field Theory and how it managed to do what he had already shown it could do in his *Proc.Roy.Soc*. paper, but a lot more, too. For he had not stood still in his work on the theory. He had now extended it to include the results of Quantum Theory. He had already achieved what the Kaluza-Klein theories, for all their early promise, had still shown themselves unable to achieve, with their Riemannian metric. But because a full treatment showing how his extended theory managed to do this would have turned his book into something like Newton's *Principia*[20] he gave only the briefest hints of his method of approach, and contented himself, instead, with outlining its results and implications. He had, I fancy, become somewhat disillusioned about the scientific community. He had played its game, according to its own rules, and had found the dice subtly loaded against him. He saw that he was regarded as a ram from another flock, and the flock had, very politely, excluded him from participating in its own affairs. For which, as regards Unified Field Theories, the flock had adopted Einstein as its leading ram in 1919, when his Riemannian theory had suddenly provided it with a dazzlingly successful new hypothesis, confirmed by Eddington's measurements at Principe.

> "..the formulation of a scientific theory is comparable to opening a gate in a crowded sheep-fold. At first one or two bold ewes tentatively venture out; others follow, and in the end the exodus becomes a scramble, and both shepherd and sheep-dog are needed to control the flock."

So Bennett observed in 1956[1] when his book (*The Dramatic Universe Vol.* 1) first appeared. Alas, the scientific community has no sheep-dog and no shepherd.

The book, like the paper, seems to have remained unread by the generality. It is certainly not the kind of book scientists generally read. For Bennett was a polymath, and he attempted in his book to do far, far more than scientists generally are prepared to accept, or even to conceive, as possible. He attempted to present the broad outline of an all-embracing cosmological world-view, which would take all that science had discovered to be valid in its various disconnected specialist domains, and weld them all into a single intelligible whole. In this, the framework of five dimensions was extended to six dimensions, and played an essential part in the cosmological scheme. The five-dimensional Unified Field Theory was relegated to a simplified presentation by way of a very brief Appendix, rather as if Newton had left all the geometry out of the Principia and merely given a cursory summary at the end. It is this Appendix which this present paper seeks to extend and clarify. Mathematically, the theory is almost absurdly simple, because it does not require the daunting complexities of a Riemannian geometry. It should be within the grasp, say, of any first-year Physics undergraduate, once the initial hurdle of dealing with a pseudo-Euclidean flat geometry is surmounted. But, after all, this is the same kind of geometry as Special Relativity requires, and any student who has grappled with Minkowski-geometry in Special Relativity has a head-start.

In what follows I have endeavoured to make every step as explicit as possible, but, while this is easily attained in regard to the algebra, it is impossible to attain, to my knowledge, with regard to diagrams. It is impossible to represent, by means of diagrams in a real space, the topological properties of pseudo-Euclidean geometry I wish it were not so, but I fear it is so. The diagrams presented in the text below must, therefore, be approached with extreme caution, for what they seem to show as holding may hold in an Euclidean space, but not in a non-Euclidean. Luckily the algebra is not subject to this restriction. We can operate with imaginary quantities in blithe sureness that the results produced are consistent with the properties of a non-Euclidean geometry. Thus Heaviside used to say, with regard to difficult problems in ordinary vector analysis; "When in doubt, fly to *i*, *j* and *k*." which are the unit-vectors that enable the algebra to work smoothly and easily in ordinary space. We have their equivalents, in our eternity-space-time, in the unit-vectors Q_1, Q_2 , and Q_3 .

A word about eternity. This is the name by which Bennett chose to denote the imperceptible fifth dimension, (in our simplified presentation it is the third dimension. The scrutineers of the Royal Society baulked at it and, although they allowed it to receive a brief mention in the *Proc.Roy.Soc*. paper, they evidently preferred the alternative name 'anti-time' for it, on the whole. Presumably it did not seem sufficiently innocuous to be adopted in a scientific context. In the context of thermodynamics the name 'anti-time' has, in Bennett's scheme, a very natural connotation. (Bennett was at one time Director of Research of the British Coal Utilization Research Association, and so was something of an expert in thermodynamics.) But to call something 'anti-' something else, does rather tend to detract from its significance as a 'something' in its own right and, as we shall see by the time we get to the end of this present paper, eternity is very definitely a dimension in its own right, quite as significant as time. So in deference to Bennett's choice, I have not sought to change the name in what follows. At a time when outlandish names like 'strangeness' and 'charm' are in general currency to denote various inscrutable but ineluctable physical properties in modern physics, we can surely make a place for Bennett's 'eternity' without ruffling the feathers of the scientific community.

A mention of 'skew-parallelism'. This is an extraordinarily simple idea which, I believe, is Bennett's own. In a pseudo-Euclidean space it enables a vector to be constructed which, although not 'really' parallel to another vector, when seen from the perspective of an observer who can see the components of both vectors; 'seems' to be parallel to it when seen by an observer who cannot perceive displacements in one of the dimensions involved. This is Bennett's means of handling de Broglie's observation concerning the imperceptibility of the fifth dimension. An observer who has, without knowing it, to line up 'his own'

direction in the imperceptible fifth dimension with the 'Universal' direction in that dimension—which is fixed—(as *i*, *j* and *k* are fixed in ordinary vector-analysis), can never be sure of getting the two vectors 'really' parallel. The best he can do is to ensure, from his observations in space-time (which does *not* include the fifth dimension) that they are *skew*-parallel. And so this is what we must *suppose* him to do. The consequences of this ingenious hypothesis are remarkable, for it is these imperceptible divergencies from true parallelism which give rise, when they occur, to the apparent presence of gravitational and/or electric fields in the 'eternity-blind' observer's space-time.

If you hammer two nails into a table, tie a piece of string to one nail, run the string around the other, and pull on the free end; at the moment the string just becomes *taut*, it will lie along a straight line between the two nails.

This, although I have never seen it pointed out, is the essence of the simplest problem in the application of the Variational Principle to the physical world. It is, I submit, how one would offer a 'physical proof' of Euclid's Definition 4: 'A straight line is that which "lies evenly" between its extreme points.' 'That', one would say—pointing at the string—is what I mean by 'straight', '*You* pull on it. Does it get any 'straighter'?' Heath points out[23] that 'the word 'hypotenuse' comes from the verb *hypoteínousa* to 'stretch under', or, in its Latin form, to *subtend*, which term is used quite generally for "to be opposite to".

In Euclidean space, one applies the Variational Principle to 'prove' the shortest distance between two points is a straight line, by minimizing the hypotenuse **ds**

where the square $ds^2 = dx^2 + dy^2$ on the hypotenuse

thus expresses Pythagoras' Theorem for infinitesimal right-angled triangles in the space. In Section (g) of the following paper, this minimization is carried out for the metric of the pseudo-Euclidean space involved, to *define* 'straightness' of a 'line' in that space. There may be other ways of doing it, that I am unfamiliar with, but I know of no shorter, neater, or mathematically more satisfying way.

If you kick a physicist, he will scream like a mathematician. For me, writing as a physicist, the boldest, most original, and ultimately most intuitively convincing conception in Bennett's compact five-dimensional scheme is not the application of skew-parallelism. That is ingenious. It provides a solution where one hardly knew there was a problem; let alone how to deal with it. It contributes an essential element that enables the whole scheme to work, but it is a small cog in a much greater machine. What makes me catch my breath in admiration as a mathematical physicist is the ultimate simplicity of Bennett's generalization of Newton's First Law to include *all conservative motions*. Uniform motion, motion in gravitational fields, motion in electromagnetic fields, all are subsumed and unified by a single sweeping unifying conception of the most ultimately simple kind—a straight line in the five-dimensional manifold. It seems impossible, but Bennett does it, with utter simplicity and mathematical economy. It breaks cleanly away from our accustomed ideas, just as Galileo broke away from the conceptions of Aristotelian physics that had been held uncritically for so many centuries that they had hardened into un-questioned dogma—in formulating what has become known as Newton's First Law.

The straightness of the line in the five-dimensional manifold is defined by the simplest possible application of the variational principle. Hamilton's Principle of Least Action thereby acquires a firm and simple foundation, because there *really is* meaning in the variations from straightness that the variational principle is informing us about by its mathematical machinery—in the full five-dimensional manifold. Hamilton's principle is the projection of an even simpler one into space-time

Bennett's 'cosmodesic hypothesis' is too simple, too direct, too 'obvious', not to be correct. In exactly the same way that Newton's First Law is 'obvious'. But nothing is really 'obvious' until one has learnt how to *see* it as obvious. Thus 'Newton's First Law' was not obvious until Galileo did his simple experiments with

musket-balls rolling down inclined planes—timing the motion by water set running from a vessel at a uniform rate—and made the mental leap to the limit of frictionless uniform motion 'in a right line'. The phrase is Newton's, but the seeing was Galileo's before it became Newton's—and is now become ours by inheritance. Newton's assertion 'I have stood upon the shoulders of Giants' is true for every scientist.

Of course, we can see now that because Aristotle never performed Galileo's experiments, he never put himself into the position of needing to ask himself *the question* that Galileo asked. That question forced Galileo to be *able* to make the mental leap to the simplicity of 'Newton's First Law'. Aristotle's mistake is obvious today. He thought he knew the answers already—he thought all motions were subject to Stokes's Law. Aristotle was a biologist, and d'Arcy Thompson waxes lyrical in his admiration of Aristotle's wonderfully developed powers of accurate observation —as a biologist. But Aristotle was no physicist. He never saw what Galileo saw. What Galileo saw had not yet become 'obvious'. It was not there to be seen.

It is strange that some mathematician, working hack from the variational principle itself, and how it works so beautifully as Hamilton's Principle for conservative motions, should not have inferred from the 'form' something like Bennett's cosmodesic hypothesis. Kilmister[10] comes to within a cat's whisker of asking the 'Galilean question' required. Pushed as far as it would go—and then beyond—it would lead precisely to the 'Galilean mental leap' needed to postulate Bennett's cosmodesic hypothesis. "How, then" asks Kilmister,"can we vary the motion by letting q and q^* be somewhat different functions of the time from what they are in reality?" Kilmister's answer is the answer of the 'imperceptive observer', whose perceptions are confined to space and time. "The answer is, of course" writes Kilmister "-'in no real physical sense whatever'." But this is *no* answer, mathematically, because a mathematician must go on to asks, "Then why does the variational method *fit* so beautifully? How, on Earth, does it happen to provide exactly the right mathematical *pattern* to describe what physically happens?" And Mathematics—considered as a Muse—goes on to explain Her own workings, to justify Her own existence in the situation. "I am appearing here (says the variational principle in the language of mere men) because there really are possible variations from the paths you actually see these bodies move along in space-time. You can't see them, but they are nevertheless real. Be sure, if it were not so, I would not be compelled to appear and make these equations fit so exactly. I only appear where I belong." Whereupon, Mathematics does an exit, left—or vanishes like the Cheshire cat—leaving only a gracious smile behind. (Plato would have thought all this blatantly obvious.)

But where I believe Bennett must be wrong is in referring to the motions which the 'Cosmodesic Hypothesis' prescribes as '*un*-constrained'. For it cannot be so, and Bennett's own carefully worked-out philosophical structure of progressive categories confirms that it cannot be so. For, to put the argument in its simplest form: as in the actual physical piece of string, above, a variational principle comes to apply because somewhere, somehow, there is a state of **tension** provoked by some polar opposition in the situation. In the Lagrangian there is a tension between the kinetic and potential energy terms, and it is this *tension* which is minimized in time, by virtue of Hamilton's Principle. When our piece of string comes to its shortest length between the two nails, the tension in the string is least. We can twang it, and it will then vibrate—forever, if there is no damping. Applying Hamilton's Principle, we find that Euler's Equation presents us with the Wave Equation. This is just about the *next* simplest application of the Variational Principle, and applied to Bennett's five-dimensional theory it is going to provide us with "a very satisfactory treatment of wave mechanics", as Bennett promised the readers (there were, apparently, none) of his *Proc.Roy. Soc*. paper in 1949.

But I shall have to reconstruct that promised paper (it never appeared), as I had to reconstruct this present one, from scattered fragments, here-and-there in *The Dramatic Universe*, and related material. It was because Kaluza's five-dimensional theory showed such a remarkable affinity with de Broglie's brilliant intuition of 'matter-waves', as Klein had pointed out in 1926[25] that de Broglie wrote the paper[19] from which

we extracted his throwaway remark above. And this is why Einstein showed such initial interest in Kaluza-Klein theories[26]. But, in that paper, de Broglie takes Hamilton's Principle as given; he does not attempt to *derive* the principle from another, more fundamentally simple, and more 'physically' or 'intuitively' obvious. Bennett did just that.

Clarifying for myself just how he did it was the toughest nut to crack in producing the present paper. After a fortnight of hard struggle, at length the solution revealed itself. To my shame, I must admit that I had, eventually, to work back from the Lagrangian expression given (but nowhere explained, as regards its derivation) in the *Proc.Roy.Soc*. paper and the original Appendix II. It is because Bennett must have got there before me, in 1949 or earlier, and because, less as a piece of mathematics than as a piece of sustained high-level physical intuition, it ranks 'in the Bradman class' (as G.H.Hardy[27] defined such things) that, finally, I have entitled this paper 'The Cosmodesic Hypothesis'.

Notes by Editor

Louis-Victor-Pierre-Raymond, 7th duc de Broglie (15 August 1892 – 19 March 1987) was a French physicist who made groundbreaking contributions to quantum theory. In his 1924 PhD thesis he postulated the wave nature of electrons and suggested that all matter has wave properties. This concept is known as the de Broglie hypothesis, an example of wave-particle duality, and forms a central part of the theory of quantum mechanics.

Theodor Franz Eduard Kaluza (1885–1954) was a German mathematician and physicist known for the Kaluza–Klein theory involving field equations in five-dimensional space. His idea that fundamental forces can be unified by introducing additional dimensions re-emerged much later in string theory. .... The five-dimensional theory was developed in three steps. The original hypothesis came from Theodor Kaluza, who sent his results to Einstein in 1919, and published them in 1921. Kaluza's theory was a purely classical extension of general relativity to five dimensions. The 5-dimensional metric has 15 components. Ten components are identified with the 4-dimensional spacetime metric, 4 components with the electromagnetic vector potential, and one component with an unidentified scalar field sometimes called the "radion" or the "dilaton". Correspondingly, the 5-dimensional Einstein equations yield the 4-dimensional Einstein field equations, the Maxwell equations for the electromagnetic field, and an equation for the scalar field. Kaluza also introduced the hypothesis known as the "cylinder condition", that no component of the 5-dimensional metric depends on the fifth dimension.

Proc.Roy.Soc. Proceedings of the Royal Society. 'Unified Field Theory in a Curvature-free Five-Dimensional Manifold'; J. G. Bennett, R. L. Brown, M. W. Thring, 1949, 198A, pp. 39-61. It is available at http://www.jstor.org/stable/98218?seq=1#page_scan_tab_contents

Principia: Philosophiæ Naturalis Principia Mathematica (Latin for "Mathematical Principles of Natural Philosophy"), often referred to as simply the Principia, is a work in three books by Sir Isaac Newton, in Latin, first published 5 July 1687. After annotating and correcting his personal copy of the first edition, Newton also published two further editions, in 1713 and 1726. The Principia states Newton's laws of motion, forming the foundation of classical mechanics, also Newton's law of universal gravitation, and a derivation of Kepler's laws of planetary motion (which Kepler first obtained empirically). The Principia is "justly regarded as one of the most important works in the history of science".

Hamiltonian quaternions. Complex numbers with one real component and three imaginary. The three imaginary numbers are usually called ***i***, ***j*** and ***k.*** All three are square roots of minus 1 but distinct from each other. They are like three *vectors* having orthogonal directions to each other.

Variational Principle: A variational principle is a scientific principle used within the calculus of variations, which develops general methods for finding functions which minimize or maximize the value of quantities that depend upon those functions. For example, to answer this question: "What is the shape of a chain suspended at both ends?" we can use the variational principle that the shape must minimize the gravitational potential energy.

The Five-Dimensional Continuum Approach to a Unified Field Theory: YGGDRASIL: The Journal of Paraphysics 1999 By James E. Beichler

"J.G. Bennett, R.L. Brown and M.W.Thring developed a theory in 1949 that was unique with respect to all other five-dimensional theories in that it differed in its basic concept, having nothing to do with a space metric. In their estimation, "We have endeavored to show that a consistent and fruitful world picture is obtained by extending the space-time framework to a five-dimensional scheme free from the complications of a Riemannian or affine geometry." The framework established was an extension of Minkowski's "absolute world" accomplished by the addition of a fifth orthogonal direction labeled "anti-time" or "eternity." Fields were then identified "with the manner in which the four way measuring system of the observer O is embedded in a flat five-dimensional manifold."

"This system depended on a notion of "time-blindness" regarding the fifth-dimensional or "anti-time" component. An absolute straight line called a "cosmodesic" was used to describe all unconstrained motion in which the particle and the absolute reference frame, in which the particle was measured, are free of curvature. This presented a "simple and natural extension of Newton's first law."

"True" intervals in the manifold corresponded to a line element of,

$$(RS)^2 = -({}^1Q)^2 - ({}^2Q)^2 - ({}^3Q)^2 - ({}^4Q)^2 + ({}^5Q)^2,$$

where the Q's represent the coordinates in each of the five dimensions and "RS" represented the distance interval. Eventually, it was found that the "field theory becomes then the science of the relations between simple unconstrained bodies moving in cosmodesics and space extended rigid systems used by physical observers for making measurements."

"Any physical observer would wrongly conclude that the space-time continuum had curvature upon another object's cosmodesic when applying a variational principle in his own four-coordinate system. This action also had the consequence of introducing two distinct components or accelerations, one corresponding to gravitation and the other to electromagnetism

"This theory seemed to represent more of a perversion of the concept of space-time curvature and an attempt to save Newtonian mechanics in the face of General Relativity and the unified field theories, than to attempt a further generalization to find a complete field structure."

Cosmodesic: a 'straight line' in a manifold. The curved paths of objects we perceive are only apparently so because of our blindness to a fifth dimension. In the higher dimensional manifold they can be represented (and 'seen') as straight.

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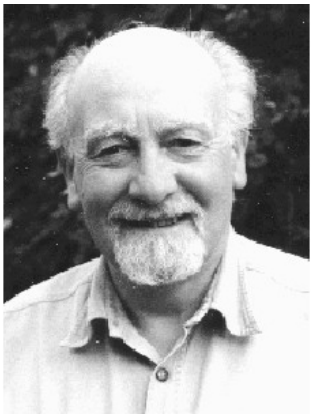
ENCOUNTERING THE WHOLE: REMEMBERING HENRI BORTOFT (1938–2012)



David Seamon [originally published in *Phenomenology & Practice*, vol. 7 (2013), no. 2, pp. 100-107]

Physicist, philosopher, and science educator Henri Bortoft died on December 29, 2012, at his home in England. He was 74 years old. Bortoft's work has an important conceptual and applied connection to this special issue of *Phenomenology + Practice* because it speaks to a particular mode of environmental encounter that might be called a "phenomenology of the natural world." His work is central to "environmental practice" because he presents an empathetic way of engaging the phenomena of nature whereby they "reveal" themselves in an accurate and comprehensive way.

In the early 1960s, Bortoft worked with British philosopher J. G. Bennett on the development of "systematics"—a method of encountering and understanding whereby one might explore the various aspects of a phenomenon through the qualitative significance of number (Bennett, 1956–66; Bennett, 1993). While doing his doctoral research in physics in the 1980s, Bortoft worked with British physicist David Bohm to consider the relationship between quantum mechanics and an understanding of wholeness (Bortoft, 1982; Bohm, 1980). In later professional life, Bortoft was invited by biologist Brian Goodwin (Goodwin, 1997) to teach in the innovative graduate program in holistic science at Schumacher College, in Totnes, England. There and elsewhere, many students were deeply touched by Bortoft's singular instructional style whereby he introduced the phenomenological approach phenomenologically.

Bortoft's best known work is the influential *Wholeness of Nature,* published in 1996 (Bortoft, 1996). His last book, released shortly before his death, is *Taking Appearance Seriously* (Bortoft, 2012). In both works, Bortoft aimed to help readers see and understand the world and human experience in a more integrated, compelling way. Invoking the perspectives of phenomenology and hermeneutics, he explored the confounding relationship between parts and whole: That to understand the whole, one must understand the parts, but to understand the parts, one must understand the whole.

Drawing particularly on Goethean science as it evokes one mode of phenomenological seeing and understanding, Bortoft argued that the key to circumventing the parts-whole paradox is a shift in attention from what is experienced to *the experience of* what is experienced. He explained how we can "step back" from what is seen into *the seeing of* what is seen. In this way, the whole comes to presence within its parts, which are the place for the presencing of the whole. In other words, the parts show the way to the whole, which can be encountered nowhere else except through the parts. By teaching ourselves to become more sensitive to this dynamic reciprocity between parts and whole, we learn to recognize how parts "belong" to the whole. We "take appearances seriously."

Early on in my academic career, I had the good fortune to meet and study with Bortoft. Here, I offer my recollections of the man and his work. My aim is to describe some first-hand encounters with Bortoft and to suggest some of the ways that his work offers fruitful possibilities for "environmental phenomenology and environmental practice."

First Encountering Bortoft

In October, 1972, as a 24-year-old American, I arrived in the small English Cotswold village of Sherborne to become a student at philosopher J. G. Bennett's International Academy for Continuous Education, a remarkable educational experiment in facilitating self-knowledge and self-transformation (Bennett, 1974, chap. 28). Over the next ten months, Bennett's major aim was to get some 100 students, most of them young Americans and Brits, to see and understand themselves and the world in deeper, more engaged ways. In working toward this aim, Bennett emphasized lectures, readings, meditative exercises, practical work in the big house and gardens, and seminars from visiting specialists, one of whom was Bortoft. During the 1972–73 Sherborne course, he offered us students two four-day seminars, one of which was called "The Hermeneutics of Science."

Of the many ways in which Bennett's Sherborne experience transformed my self-understanding, Bortoft's seminars were one of the most important because he motivated us students to realize there was another way of seeing that was more open and intensive than the arbitrary, piecemeal mode of knowing that standard educational systems emphasized. In the seminars, Bortoft's primary teaching vehicle was Goethean science, which he introduced us to through a series of do-it-yourself perceptual exercises laid out

by Goethe in his 1810 *Theory of Colors* (Goethe 1970). I still have the notes in which I copied the key questions that Bortoft had us keep in mind as we looked at and attempted to see color phenomena:

- What do I see?
- What is happening?
- What is this saying?
- How is this coming to be?
- What belongs together?
- What remains apart?
- How does this belong together with itself?
- Is it itself?
- Can I read this in itself?

My specific memories of Bortoft's two seminars are cloudy. I do remember the sparkle in his eyes: He had an extraordinary way of radiating enthusiasm and profound regard for his subject. I remember that the seminar sessions were held in the upstairs library of Sherborne House, the great country estate that Bennett had purchased to accommodate his educational experiment. As students in the program, we were divided into three groups of about thirty students each. Every third day one of the groups was responsible for "house duty"—cleaning, washing, and cooking meals for students and staff—while the other two groups participated in learning activities, including Bortoft's seminar.

For the days that he was with us, Bortoft would teach two sections of seminar each day so that all three student groups experienced the same set of lectures. I remember his telling us that, each time he did the same seminar session, it arose and arranged itself differently—that part of the uniqueness of the approach he sought to actualize was the spontaneity of the moment playing a central role in how and what things ended up said. So much of what he taught was grounded in a trust that, in making an effort to see and say, one could discover new, surprising insights. For me, each session was revelatory and inspiring. I gradually came to see how constricted I was by a limited, manipulative cognitive mindset that could only understand piecemeal.

At the time, I only grasped a small portion of what Bortoft was presenting. I did vaguely understand, however, that, if I could see and know in the way that he saw and knew, my future as a human being and potential academic might be entirely different than otherwise. I remember realizing all of a sudden that seeing, saying, and meaning were all of a piece—the core of a deeper mode of understanding whereby things showed themselves as they were rather than as my narrow intellectual consciousness supposed those things to be. I remember that one fellow student became quite upset and angrily left the room when Bortoft suggested that one does not see or know if he or she cannot say what he or she sees or knows. He quoted hermeneutic philosopher Hans-Georg Gadamer's claim that "Being that can be understood is language" (Gadamer, 1989, p. 474). This point prefigures the argument laid out in Bortoft's *Taking Appearance Seriously,* in which he contends, after Gadamer and phenomenological philosopher Martin Heidegger, that:

> Language is the medium in which things can *appear* as such, i.e., as what they are.... When things enter into language they enter the world. What appears in saying are things themselves—language is the medium, not the message.... [I]t is language which gives the world in the first place—i.e.,... language is the condition for the possibility of there being 'world'. The world 'lights up' in the dawning of language (Bortoft, 2012, pp. 145–46).

Working toward Authentic Wholeness

What I encountered in Bortoft's Sherborne seminars played a major role in giving direction to my future professional life: An interest in phenomenology and the particular mode of phenomenological

understanding offered by Goethe's unique approach to looking and seeing (Seamon, 1979; Seamon, 2007). Already, in 1971, Bortoft (1971) had written an article, "The Whole: Counterfeit and Authentic," that expressed the kernel of all his work that would later follow. Significantly, that article was originally a talk he delivered on April 21, 1971, for a conference, "Developing the Whole Man," which launched the fall, 1971 first-course start of Bennett's Sherborne School that I would attend on the second course in fall, 1972. In the introduction to that article, Bortoft (ibid.) wrote:

> If the theme of "Developing the Whole Man" is to have significance for us, it must have a distinct and unique meaning. Whatever this is, it must be integral. Which means that the meaning of "developing" which is particular to this phrase is mutually dependent upon the meaning of "whole man" within which the meaning of 'man' is dependent on the meaning of "whole," and the converse. We shall go through the question, "what is the whole?" as it means to sounding out the meaning of "Developing the Whole Man." We begin with situations where the whole is inescapable, and which thus can provide paradigms for the whole. We consider: The optical hologram, the gravitational universe, and the hermeneutic circle (p. 44).

I completed my doctoral work in 1977, having written a PhD dissertation that drew partly on Bortoft's ideas as they were in turn indebted to Goethe's way of phenomenological science (Seamon, 1979). In 1983, I envisioned, with philosopher Robert Mugerauer, an edited collection that would explore the value of hermeneutics and phenomenology for topics in environmental and architectural studies. Because Goethe's way of science offered singular possibilities for a *lived* environmental ethics, I asked Bortoft if he would revise his 1971 article as a chapter in the proposed collection that Mugerauer and I eventually published as *Dwelling, Place and Environment: Toward a Phenomenology of Person and World* (Seamon & Mugerauer, 1985). Bortoft's revision, entitled "Counterfeit and Authentic Wholes: Finding Means for Dwelling in Nature," included his first extended discussion of Goethean science (Bortoft, 1985). In that chapter, he concluded by advocating a more receptive, empathetic way of encountering the natural world:

> It is widely acknowledged today that, through the growth of the science of matter, the Western mind has become more and more removed from contact with nature. Contemporary problems, many arising from modern scientific method, confront people with the fact that they have become divorced from a realistic appreciation of their place in the larger world. At the same time, there is a growing demand for a renewal of contact with nature. It is not enough to dwell in nature sentimentally and aesthetically, grafting such awareness to a scientific infrastructure which largely denies nature. The need is a *new* science of nature, different from the science of matter, and based on other human faculties besides the analytic mind. A basis for this science is the discovery of authentic wholeness (pp. 299–300).

In the later 1980s and early 1990s, Bortoft wrote a series of essays on the nature of authentic wholeness (Bortoft, 1986). These essays would eventually become the chapters of his extraordinarily creative *The Wholeness of Nature* (Bortoft, 1996). To me, this book is one of the great, unheralded works of our time—perhaps arriving too soon for many people to understand. But I believe firmly that this work is a harbinger of a new way of engaging with the world that will grow in intensity and significance as the 21st century unfolds. As we typically are, we don't fully engage encounter the world or the things, places, and living beings in it. Bortoft taught a way of seeing that graciously meets and opens to the "Other." In allowing the Other to become more and more present and dimensioned, this method of knowing not only deepens our sensibilities but facilitates an emotional bond of wonderment and concern. We see more and, though that understanding, may better care for our world.

One of Bortoft's most cogent portraits of this mode of seeing and learning is the 1971 article mentioned above and published in Bennett's quarterly journal, *Systematics*. There, he wrote:

> We cannot know the whole in the way in which we know things because we cannot recognize the whole as a thing. If the whole were available to be recognized in the same way as we recognize the things which surround us, then the whole would be counted among these things as one of them. So we could point and say "here is this" and "there is that" and "that's the whole over there." If we could do this we would know the whole in the same way that we know its parts, for the whole itself would simply be numbered among its parts, so that the whole would be outside of its parts in just the same way that each part is outside all the other parts... But the whole comes into presence *within* its parts, so we cannot encounter the whole in the same way as we encounter the parts. Thus we cannot know the whole in the way that we know things and recognize ourselves knowing things. So we should not think of the whole as if it were a thing..., for in so doing we effectively deny the whole inasmuch as we are making as if to externalize that which can presence only within the things which are external with respect to our awareness of them (Bortoft, 1971, p. 56).

To make the parts/whole relationship more clear and grounded phenomenologically, Bortoft (1996, pp. 59–60) drew on Heidegger's discussion of "belonging *together*" vs. "*belonging* together" (Heidegger, 1969, p. 29). On one hand, the parts/whole relationship can be understood in terms of "belonging *together*"—a situation where the thing belongs in some larger structure because it has a position in the order of a "together" that is arbitrary or fortuitous (e.g., the names and addresses in a telephone directory). As a result, any parts will more or less suffice (Bortoft, 1996, p. 59). This mode of togetherness is typically assumed in conventional empirical research whereby the researcher arbitrarily decides on the parts of the whole and then defines and measures their consistency and connections accordingly. On the other hand, there is the contrasting parts/whole situation of "*belonging* together," in which the "together" is established by the "belonging" (ibid., p. 60). In this case, the parts are together *first of all because they belong* and, thus, each part is essential and integral, contributing to and sustained by the belonging. One reason for Bortoft's continuing interest in Goethean science was the fact that Goethe had searched for the "belonging" in the natural phenomena he studied—for example, the way prismatic colors always cluster together in terms of the darker (blue, indigo, and violet) and lighter (yellow, orange, and red) colors. This integral, non-contingent relationship marking out the appearance of colors eventually led to Goethe's provocative claim that color arises from the tension between darkness and light (rather than from light alone, as Newton had argued) (Bortoft, 1996, pp. 40–49).

Bortoft's Legacy for Phenomenology and Practice

The heart of Bortoft's work is that he allowed things to be as they are. Through that "be-ing," he became a medium whereby they could speak, be seen, and offer meaning. In turn, his teaching and writings ignite that hopeful possibility for us. For those researchers and practitioners who wish to commit themselves to Bortoft's way of seeing and understanding, they must soberly recognize that the effort is not easy. The style of encounter and understanding that Bortoft so perspicaciously delineates requires dedication, perseverance, and a deep wish to see, no matter where that wish takes one.

I last saw Bortoft in Oxford in summer, 2011, when he had just finished a presentation for the annual International Human Science Research conference. Gordon Miller, the historian and photographer who had just completed a new, illustrated version of Goethe's *Metamorphosis of Plants* (Goethe, 2009) had organized a conference session on Goethean science, and Bortoft was one of the presenters. After his presentation, he and I talked for only a short time because he was not feeling well and wanted to return home. What he did

mention was his frustration with "followers" of his work—that too many took the Goethean approach too easily and fell too readily into cerebral, fantastical imaginings of phenomena rather than demanding of themselves an engaged, intensive encounter with the phenomena themselves. In his writings, he called this methodological difficulty the "hazard of emergence." He wrote:

> A part is only a part according to the emergence of the whole that it serves; otherwise it is mere noise. At the same time, the whole does not dominate, for the whole cannot emerge without the parts. The hazard of emergence is such that the whole depends on the parts to be able to come forth, and the parts depend on the coming forth of the whole to be significant instead of superficial. The recognition of a part is possible only through the 'coming to 'presence' of the whole (Bortoft, 1985, p. 287).

As this emphasis on hazard suggests, Bortoft's Goethean phenomenology offers no guarantees: On can readily read too much or too little into the phenomenon; one can easily go off track entirely. Bortoft's vision and method are not easy to learn or master. They require steadfast dedication over a long period of time. But they do promise personal satisfaction and helpful insights that might inspire others. Perhaps most significantly, his work points toward a way whereby we might reinvigorate a sense of reverence and love for our world and the Earth. In turn, that feeling of good will might transfigure environmental practice whereby we more comprehensively care for the natural environment and reduce the world's entropy rather than add to it. As Bortoft (1971) wrote:

> [Encountering authentic wholeness] brings about a radical transformation in our attitude to the natural environment and the biosphere. Standing in the arrogance of subjective awareness, we approach nature as dumb and stupid, as something that needs to be re-arranged, harnessed, and put to good use by us, whom we imagine to be the possessors and sole bearers of intelligence. But [a] turning around into the whole demonstrates that nature should be entered into watchfully with care. It shows that watchfulness is essential in that nature is a living presence that can communicate with us if we can turn around into the right condition for being spoken to and hearing ourselves being spoken to (p. 64).

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A SELF-ORGANISING GROUP IN DIALOGUE

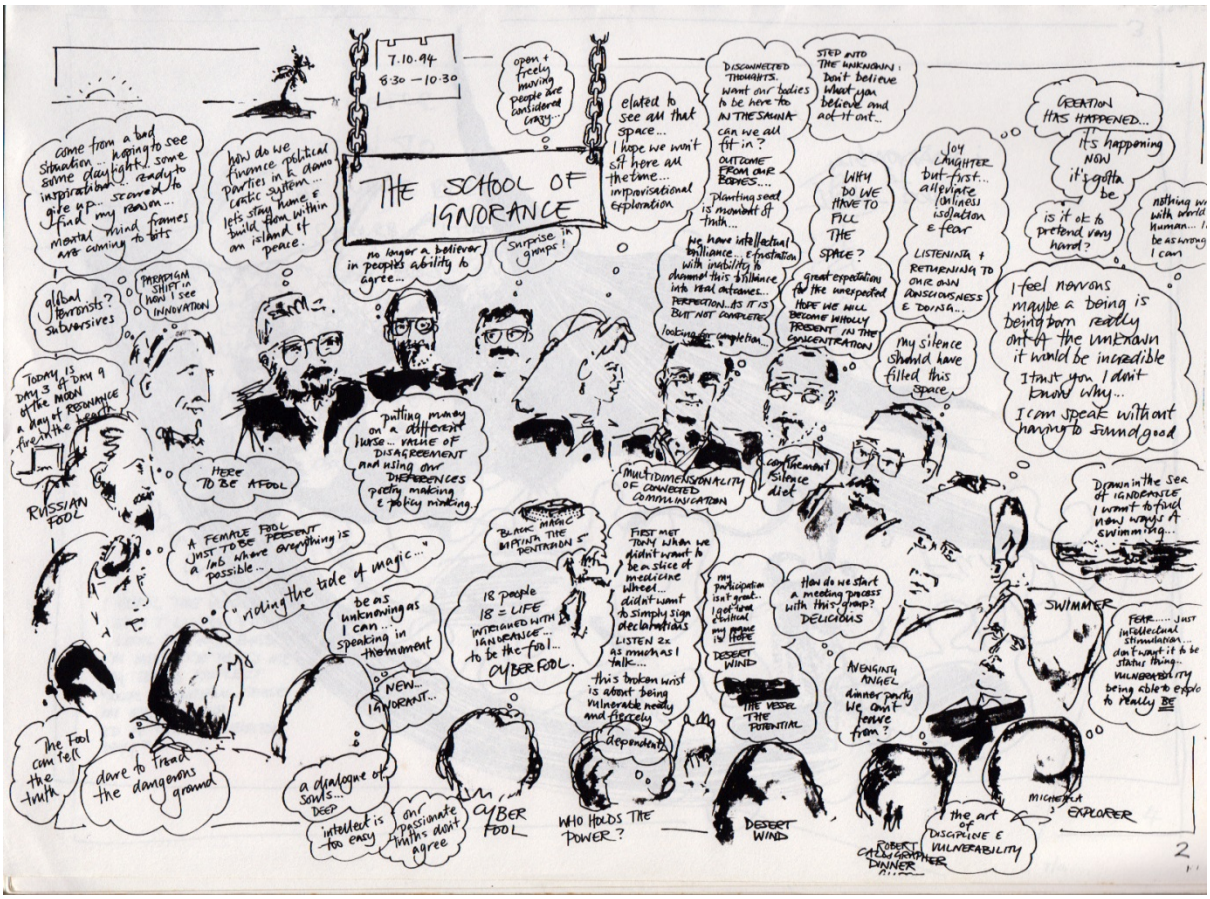
Anthony Blake

This is a personal report on what happened at the 1994 meeting of *The School of Ignorance* and what it meant to me. As far as possible, in the spirit of the school, I have tried to avoid generalisations and theoretical conclusions, but I have not quite succeeded.

Twenty people, highly skilled in group processes, development programmes, transdisciplinary conferencing, political negotiation, etc. gathered at Minton House, Scotland to spend three days in dialogue together. Minton House is just next door to Findhorn but is not formally part of the well-publicised Findhorn community. Roughly half the people were new to these meetings, five of which had taken place over the last several years, at irregular intervals and with various memberships. The group was fairly balanced between men and women though men were in the majority. There was no agenda per se and no leader or 'facilitator assigned.

It was a very international group, including German, French, Russian, Israeli, Palestinian, Canadian. USA and other nationalities. Some of them had travelled very far to attend and, for the most part, participants financed themselves. Only two of the people were 'locals', in contrast with former meetings, and the overall level of commitment was probably more substantial than before. Most of the participants knew each other through a rich context of mutual associations. I was the exception, in not having met or worked with any of the participants before.

The title of the group - *The School of Ignorance* - was the only, but sufficient, orientation in the context of networking and previous contacts, together with the participant list. Meeting mostly as a total ensemble in the round, from Friday night to Monday lunch-time, the people talked with each other for up to ten hours a day.



All the participants had had long and diverse experience of the usual phenomena of misunderstandings, neurotic projections, fixed ideas, wasted insights, distractions, etc. that come up in groups Some of these surfaced during the meetings but did not overcome the way 'through meaning . [1] The maturity of the group showed in the natural adoption of an etiquette of non-interruption and attentive listening. As we learned at the end, on previous occasions there had been single individuals who threatened neurotic sabotage; but this was entirely missing on this occasion. Attention was almost entirely on 'the work', the task in hand, that no-one could define.

We do not know, or could not say, whether anything was at work besides the interactions and dialogues of the participants. There was a certain feeling of questing for something that was an 'answer' but would not look like an answer; something that would be relevant to the problems and anguish of the world (Rwanda, Bosnia, the Gaza Strip, etc.). There was a general consensus, almost taken for granted, that very little in the way of intentional 'developmental' programmes was working. The real, chaotic complexity of the event was integral to its value - another reason for the avoidance of clear-cut conclusions.

1. Membership of the group was by invitation only, with some cross-checking between previous members. Those who were present had managed to find a way of being there (time, money, etc.). It was a highly contingent process.
2. There was hardly any breakaway activity - 'let's stop talking and do something different'. At some point, it was generally accepted that what we were doing was talking and that was what we were doing.
3. A lot was done at dinner, meeting in small numbers around a bottle, etc.
4. Everyone spontaneously changed their position in the circle from session to session and sometimes during the sessions.

5. There were some very individual contributions. For example, one person made a little shrine, struck a bowl, read poems, used the I Ching, burned incense, etc. Such contributions were not distractive.

6. The group allowed itself to go right to the edge of distraction without falling off. No-one could tell exactly what distraction was or what the 'rules' were.

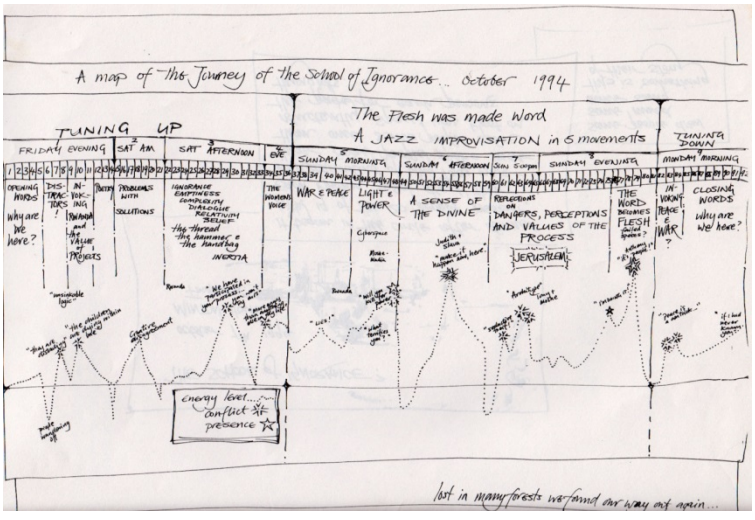
7. There were specific issues brought into the spotlight such as the value\threat of Internet. But discussion of these was aligned to upping the degree of 'illumination' they afforded.

8. The reality of a spiritual dimension was generally accepted, with no-one pushing their version of it beyond a certain point.

One of the most significant emergent phenomena from this self-organising group was that of intensive dialogue between two or three, supported by the attention and facilitation spontaneously offered by the rest of the group. Between three or five - according to different perceptions of value - of these dialogues arose during the course of the meetings. It was as if the whole group was concerned with extracting, distilling, bringing into the light, an 'essence' from the exchange. It had little to do with coming to any 'agreement'. Only certain kinds of exchange were useful in this way. In these, the people felt concern, even pain, and their beliefs were brought into question; there was passion, sometimes anger, and yet a total respect for each other; there was an involvement that was total. Those in facilitation were not concerned with the usual 'process interpretation' [2] but were themselves involved in the dialogue: sometimes taking sides, or offering another side, all the time dedicated to ensuring that the intent of what was being said was recognised and clear.

Such events emerged spontaneously and no-one was credited with making them happen. Someone getting angry and passionate - for example, to say: "We've hardly done anything! We're not where it's at!" - might 'inadvertently' release a dialogue between two other people. It was unpredictable.

Significant were some expressions, attempts, to indicate the 'presence of the divine'. All were respected, but not passively. There was always a degree of challenge to any statement. One kind of challenge, for example, was to 'make it happen, now'. Another kind was to remind of the obverse, the demonic side; almost to say that one person's divine light could be the very devil. Sometimes, very careful, very precise explanations of the 'presence of the divine' went on; and questions, 'what does this mean? how does it work?'.



There was an important awareness of the lower-level issues as lower-level - the male-female split came up as an issue and had some effect, but was superseded and left behind. It was implicitly, and then explicitly, recognised that such issues were not the real meat of the situation. Going 'through meaning' implies a thread woven through the tangle of interchange. It seemed to me that a kind of story, or drama - maybe more than one – was coming to expression, interspersed with other episodes not so strong. But, it was impossible to treat these other episodes as not-relevant. What was coming into expression was not at all like a single concept but something that could only be articulated through the uncertainties of the total interchange. It had to be done as well as thought.

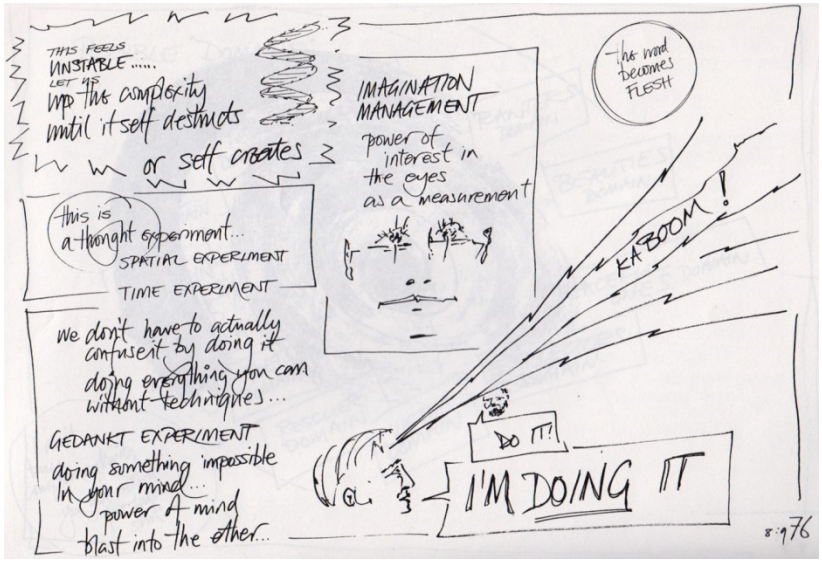
One of the participants made pictorial and verbal notes [see the illustrations here], but that was his self-chosen work, permitted by the others. There was almost no regard for 'conclusions'. There was a general understanding that each of us had become 'informed' by the event so as to be more effective in what we did afterwards. [3] t

must be understood that very little theory was introduced or 'applied' during the meetings, though some ideas of 'integrative structure' (my term) were offered to the group by a few of the participants. No structural idea, method or theory was ever adopted. What seemed essential was for every member to apply themselves totally to the situation, however they might be able. Thus, one person made observations and comments consistently in precisely measured tones; another wandered the room responding to the dynamic of the moment, yet another spoke close to tears, and so on.

Self-organising systems are systems with many autonomous parts, enclosed in some way, out of the interactions of which (within the enclosure) spontaneously emerge various patterns or orders. This is an extraordinarily interesting process when the autonomous parts carry individual intentions. Then, we go beyond the bounds of physical systems into the complexities of human communication: mutually defining reality and creating new meanings. It is possible to offer some 'rules' or 'qualities' of engagement in the process of self-organising dialogue that seem to help its meaningfulness.

1. listen impartially
2. accept the being' of the person speaking, their integrity in their own terms
3. challenge any statement made for the sake of truth
4. obey and support the implicit requirement of enclosure for the group as a whole
5. recognise different levels of intensity, or quality, or immediacy, or meaning
6. facilitate the higher levels by whatever means: affirm, negate, mediate, enhance, refine, expand, clarify, question, stay silent .... as needed
7. actively put oneself into the situation as it is and risk oneself concretely in action
8. bear the pain of contradiction in oneself, encompassing as much as possible
9. do not accept any one terminology or framework to be adequate to the description of what is going on, or even any combination of them
10. do not have any specialisms of role such that anyone is fixed in a role or there are any fixed ideas about roles
11. make the dialogue as natural, individual, immediate, concrete, direct as possible
12. allow the possibility of there being an integrative mode of dynamic, conflicting, complementarity (without it having to be specified) coming from a 'group consciousness'

A question of concern to all, and one being worked at through the three days, was how to make a direction to be followed when there was no agreed finite task? The question is subtle, since it seems to call upon and yet reach beyond our various judgements of significance. One member could feel that there was no meaningful direction whatsoever or, if there were, that no movement had been made along it. Another could feel almost the



contrary, that progress had been inexorable. [4] However, these very differences were themselves part of the complexity of the process. I believe it to be the case that most of us felt that we could not put the 'right direction' on one side and the differences' as in opposition on the other side.

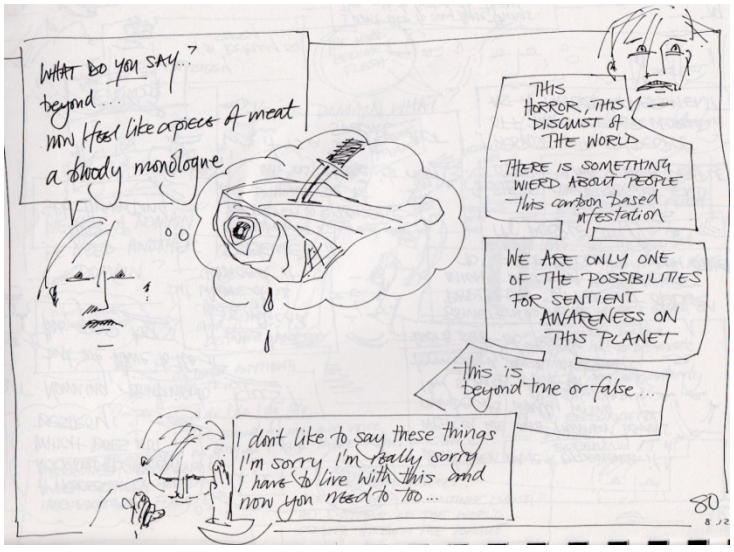
Quite early on, one of the group began to argue that there could be 'the solution' (to the central problems that concern us in the group and in the world at large) coming to us and that we would not accept it. Another member took exception to any idea of a perfect answer. Similar themes entered time and again into the exploration of 'divine presence' - which someone stated as 'something infinitely better than this'. But there was never any agreement' or 'resolution' of these issues. Somehow, it went beyond agreeing or disagreeing.

Similarly, we knew that insights reached at one time or event were being lost at a later time and yet they were not, as if there were another kind of memory. It was true that in the start of every new session it was always somewhat like starting the group up all over again. There was never on hand any apparent dynamic memory of what had transpired in the previous session. Nevertheless, it is remarkable how much can be reconstructed of the course of events, the interchanges and so on, as a living stream of meaning.

I believe that it was felt that any attempt to 'define the process' (the desirable process) necessarily precluded this description as a guide to be followed in an explicit way. This was something more - possibly - than not wanting someone else's scheme to be imposed on oneself. We did create events of a high degree of structure, but the emergence of this structure came from the meaning of the event. To set up 'general' structures did not seem to be useful, because it would have inhibited the concreteness of the event. All of us were steeped in archetypal forms but we did not wish to choose any of them in particular. So, some of us had a strong desire for structure while inhibiting any move to put it in place. We had to work from this contradiction.

Similarly, as I said at the beginning, some of us wanted to do something of relevance to the suffering of the children in Rwanda, while remaining extremely sceptical of all our good intentions and development programmes. Yes and No at the same time.

Contradiction and concreteness, then, seem the main criteria for going in the direction of meaning. The quest for structure remains, but this is the structure that belongs to reality, not to our conceptions of it. Implicit in the experiment is the possibility of a group consciousness that is capable of seeing and acting by real structure in a way that escapes the individual mind. By saying this, I find that I have been seduced into making conclusions.



It is not even possible to say that this meeting was a 'good thing' - simply because it begs the question which was at its core. The truth is that, simply, we have to do things together, we have to meet and talk, and no general method will ever 'work'. Contingency and conflict are integral to what we can do. [5]But, in bearing contradiction in ourselves, individually, we seem to be able to make something possible, something of another order to the usual lies and confusion. This is the 'price of admission' to a mode of operation that must already be there, permeating all human dialogue, but unnoticed in conceptual thought.

In communicating with some of the participants after the event, it seems to me that the most common experience can only be described as a feeling. This may be disappointing in regard to explicating cognitive structures but does not exclude this. [6] The type of feeling we (some of us) have is, I believe, of such a nature that it is intimately allied to cognitive insight as it might

arise in the moment. It is a feeling that will draw in experience and develop new meanings; and it may well serve us as a guiding companion on our various journeys into the 'unknown country' that lies ahead.

I am deeply indebted to all those who made the event happen. Thank you all.

Afterthoughts (tentative and speculative)

Any systematic analysis of the Meeting would be difficult for many reasons. In particular, it would require extensive material on the content of the discussions as well as on the various episodes of process. One of the strongest impressions I received - echoing what I have been faintly groping for over exceedingly many years - is of process and content as becoming one. This does not mean that the content was the process! Far from it. If anything, the reverse. The tendency to look at process as something in itself apart from the content is. I believe, on the whole misleading. What is being spoken of and how are really not divided at a triadic level of discourse, or the why.

We also face the subtlety of the questions: what was the world we shared in? who made it so? Forty years ago, Solomon Asch framed 'the conditions for effective dialogue' and these have hardly been bettered. They hinge on the production of a 'shared psychological field' by talking about the 'same world' and recognising the basic similarities between humans Bohm talks about the 'informational field' of the dialogue group, which is nearer to what I want to understand.

The Meeting acquires a world primarily through what I call monalogue - not monologue - or monadic discourse. Monalogue is not just one person speaking - it is everyone speaking one at a time. This may seem a trivial point. It is not. I am struggling hard to offset the legacy of systematics in its external and 'classical-observer' form. The real monad is a collection of spirits all doing their thing. In time and space they have to speak one at a time (and some say more than others). Monalogue brings the 'people' into a compresence in which the informational field can manifest. I am supposing that this field in itself is intelligent. If. for example we gather to pay attention together to means of solving or alleviating certain world problems, then something is attracted to us. We need not picture it as 'outside' of us - it is up to us how to picture it. But if, for example, we say that all that we will ever find is in our own brains, then we still have the question of access to this stuff! It may be that we cannot access what is really valuable if we are in isolation. It may also be true that this dialogue action, whatever it is, does provide the means of access.

When two people engage we have a dyalogue. In monalogue, nobody is really addressing another person. Everyone who speaks is representing the whole world of discourse. This ceases with dyalogue. The world is split - however it is split at that moment, in that way. Those involved are caught up in the dyad they are making. The energy level goes up, and they become a centre of attention for others in the monad. If the discourse does not simply repeat itself, a peculiar kind of creativity emerges - because the two involved have to find ever new ways of expressing their side of the polarity. This is the hardest thing to maintain. Sometimes it can be helped by others in the group. A point is reached when it is hardly possible for the participants to recognise the dyad with which they originally began.

Another thing can happen, a progression that takes us into trialogue. At a certain moment in a dyalogue, someone else can intervene in a strong way - to point out the meaning emerging between them - something they cannot themselves do. It may seem inappropriate, but I am intrigued by the tradition that regards the erotic act as not fulfilled without the third. Sometimes, the third is simply the witness but, at other times, the third person takes a physical role. The very fact that there are others present heighten the dyalogue. When a third person also engages, it is a risky act. How should he speak? His is the task of pure meaning. He has to say what it means. But, as soon as he does so, the dyalogue can cease. It is very rare for the dyadic pair to continue - into another realm.

This successiveness of events is typical and sometimes makes it difficult for the participants to grasp the wholeness of what is happening. Put simply, everything that is 'built up' has to be forgotten or put aside just in order for something new to happen.

In my own work I have defined certain 'conscious roles for trialogue' and I have some of my students experimenting with them. A takes the role of asking questions, B of giving answers and C of expressing meaning. They act in the sequence A-B-C-A etc. No 'back and forth' is allowed. Some of the results are extraordinary though in a way difficult to define. Some exchanges remind me of Heidegger's 'Conversation on a Country Path' (between scholar, scientist and teacher) in *Discourse on Thinking* (although the people in question had never read Heidegger). There is, evidently, some distinctive form of mentation engendered by this method.

I have also made some tentative experiments in simply setting dialogue into motion and pointing out the bare forms of monalogue, dyalogue and trialogue - leaving it to the participants to notice or make use of these forms as they appear. In this respect, I think that having the forms in mind makes a difference; but it is essential that the people do not try to make them happen or spend time discussing how they should be implemented. The ideas themselves do all that is necessary. Those that I have mentioned are mere exemplars of the richness of the informational field. It may seem perverse for me to say this, but if there is one rule that should always be applied, whatever the set of ideas, it is that they should be forgotten when it comes to the Meeting itself.

Whenever such ideas are, on the contrary, brought into expression and made explicit - it will always seem that people reject, ignore, subvert and otherwise throw them away as irrelevant to their situation. That is fine! When they have been put aside, they can do some useful work. In an important sense, what happens when someone brings in a 'guiding idea', such as some conceptual structure of roles, is that this puts him or her outside of the monalogue: the intrinsic immune system then gets to work to fight off the invader. It's quite different when someone says: "My God! Did you see what just happened? This is fascinating. What does it mean?"

There is here involved some fundamental question of authenticity. This is something very strong. When we agreed to participate in a group without leaders or agendas, this agreement was substantial - and it did not include being sold any system or method as we went along. This is terribly difficult to write about in cold blood, because there were variety of positions about this, and also a very deep concern with the issues. The point is that all the participants felt and sensed almost instinctively when the bonds of the primordial agreement were being broken.

If three people agree to do trialogue, then that is OK, that is what they have agreed to do. It is perfectly possible for people to come to new agreements in the course of fulfilling an old. I had this within my own experience in the group when, through the helpful assistance and heart-felt counsel of another member, I saw that I had permission to speak in a certain unusual fashion. The emergence of such new agreements are extremely important. They can empower new lines of enquiry and ways of approach. Without them, these same things turn into distractions.

It gets a bit mystical when I now go on to say that trialogue brings in dialogue-agents of another order. Trialogue is the step beyond 'people'. People are confined to monalogue and dyalogue. In trialogue we get beyond asserting and denying. These may still remain, but as a role. If our Meeting came to fruition, it would realise a synergy with a greater present moment. An Idea would be generated that goes out into the world at large and exerts an influence. It has to be an Idea, since this neither asserts nor denies! That is why we may feel that nothing conclusive came out of the Meeting, or only impressions carried variously by its participants. We spoke of the Divine Presence. There is also the bringing to birth of the Idea.

Now, I believe that an Idea is essentially triadic. That is part of the reason why I am still chary of metaphors - because they are sub-triadic. An Idea encompasses its own limitations and alternatives. Somehow! In a sense, nobody can 'do' anything with it. That is its significance. It is both extensive and intensive, etc.

These descriptions are derived from a symbol known as the enneagram, a nine-fold structure depicting transformative processes in three 'dimensions'. The third dimension or realm is sometimes called 'harmonious reconciliation' - though that is too weak an expression. The whole character of the third phase is reconciliation. I can put it simplistically by saying that the first dimension is that of monalogue, the second that of dyalogue and the third that of trialogue. The culmination is a folding of the trialogue back into itself as a higher unity. Here we have what I mean by *Idea*. It is then entirely intensive in the experience of the participants, maybe just like a feeling as I suggested at the end of my report.

The notes recorded during the sessions were at the level of monalogue. What is in the feeling of the participants is connected with dyalogue. This can be explained in terms of dyalogue providing energy and interest. What eludes us as people is trialogue in which realm the Idea is born and comes to being.

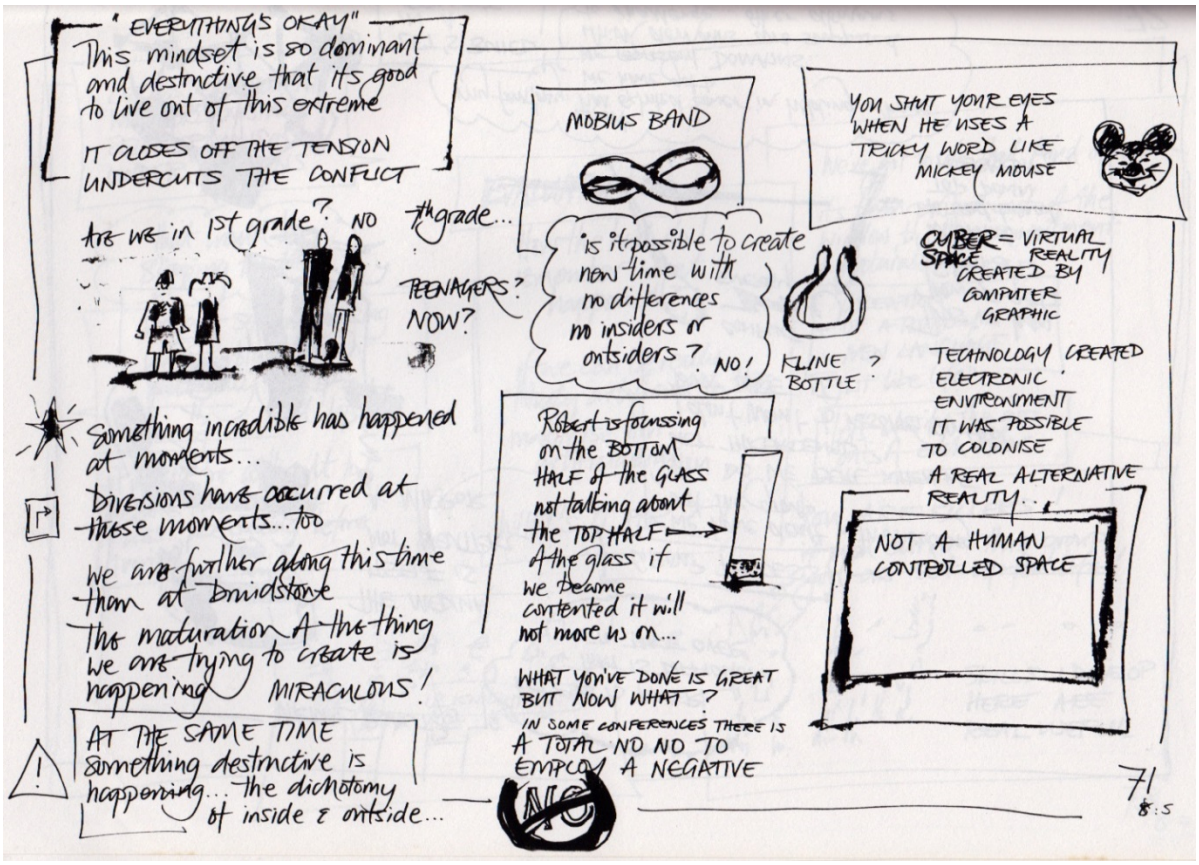
The phenomenology that could have been recorded would have been very rich. For example, we have to have both a time-based sequence of events and also a recurrent pattern of events. In respect of these both, we participants came to life at certain critical 'locations' in our various ways.

We participated in certain events and not others and we participated in various roles and not others. These performances must have come out of all our experiences in the larger context, and these were 'driving' us. That is why the Idea can, in principle, address the larger issues. As I understand it, the Meeting was an enactment of a world action. We brought the world into the Meeting in ourselves.

I've spent some time on an 'enneagram of world views' and it grows more and more fascinating, with no end to it. The interesting thing is to see the dual play of two quite different tendencies, crudely: each view is being pulled into a deeper integration while reacting against the proceeding one. This dual play is that of the triad and the dyad. We could envisage making a description of six views or orientations for the Meeting, in which various of us tried to put together our various views (on the views!)

This would then unfold into a dramatic story. The recurring problem is that any specification of the positions raises all sorts of alternatives and confusions. If we had to justify the enneagram, say, as well as our interpretations of it we could never do anything! And then we are back to where we started.

All this leads me to suppose that the 'informational field' has intrinsic properties of structure that do not need to be 'put' into it. This, maybe, is what people come together to discover, or to renew in themselves. The coming together in groups always takes place within a context of other interactions, largely of a more dispersed kind. The archaic form of recapitulation' (or renewal) was that of story. As that of 'revelation' (or discovery) was prophesy. It remains up to us to inspire ourselves towards the discovery of what we really mean.



Notes

[1] The way through meaning' comes from the word 'dialogue' in Bohm s interpretation as *dia* through and *logos* meaning Some of the participants knew Bohm's theories but these were not made explicitly the basis of the work.

[2] Usually, the facilitator offers comments on the process of the exchange rather than on the content. In this case, however, process and content were not separated. To an outsider, it would have simply looked like an argument in which others were joining in.

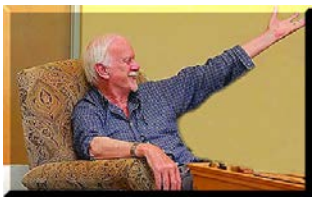
[3] However, one member did venture the suggestion that it would be interesting and valuable to see if we could work in a group of 50-100 people. The 'lore' in this field has the consensus that self-organising groups cannot work with a membership of more than six or seven, which was the number of the first meeting in the series. In succeeding meetings, the numbers gradually rose to that of the present event. Actually, there is growing resistance to the idea of working with a group of 50-100, and a desire for another meeting of the same size first. It remains uncertain to what extent numbers count in this area. Maybe, there are other factors to do with e.g. the spirit of friendship and respect

[4] The arising of such differences is easy to understand, since we have the many (various people) coming together to act as the one (the group), so that the idea of group purpose is self-contradictory on its own level, and fragmented at the individual level. We can, if we wish, make a leap into some idea such as that of 'group mind' and accept that it operates under its own logic and that we can learn how to participate in it more or less consciously, with more or less understanding. But this consciousness and understanding may not require any such concept as that of 'group mind'!

[5] Certain things can be done only by doing them, not by thinking about them. This is not 'blind'. Thought can only think and is 'blind' in its own fashion. Similarly, there are things that can be thought and not done. In my view, the group came very close to some different understanding of the relation between 'doing' and 'thinking' than the usual one. One way of putting this is to say that understanding itself became more attached to doing than to thinking. This reversal of roles is often a sign of a significant evolution. Thus, we went into doing to improve our thinking, rather than going into thinking to improve our doing.

[6] I myself have been helped in the development of my theory of 'monalogue', 'dyalogue' and trialogue'. The feeling experience of the event is what I call an intensive recollection of the event, rather than the extensive one that would appear in written notes.

NOTES FROM WEEKEND WITH ANTHONY BLAKE



Michael White

Making a New Start – Systematics Gathering XVI – June 19th-21st 2015

there is no separation
between your eye
and the furthest star

everything you do
changes all future potentials

the circle

the symbol of wholeness
also represents zero
the symbol of nothingness

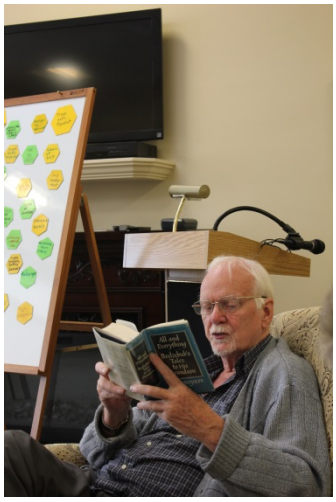
there are a totally unacceptable
number of gods

when you add it all up
the energy of the universe
equals zero
the all of everything
is nothing
this upsets some people
and delights others

don't explain it
experience it

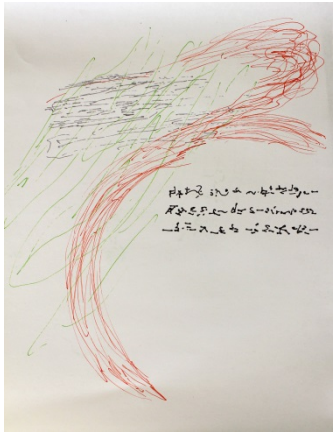
if it matters to you
do it

to create a new reality
make yourself a cooking pot
throw in lots of different ingredients
and turn up the heat



you only see what you expect to see
your mind creates your reality
nothing else even registers
your beliefs blind you

it's not easy being human
if you dare interrupt a talk on love
you're immediately hated
you always think you're right
and find out later you're wrong
you want cooperation and agreement
but only on your own terms



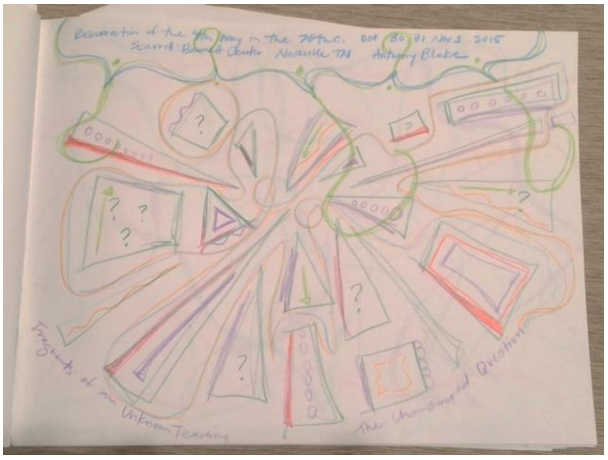
if it doesn't justify your world view
it makes no sense to you
our minds are a bundle of recurrent ideas
with a preconceived narrative

if you're not thinking
with the whole of your body
you're not thinking

before we accepted the principle of ignorance
we had to invent gods
otherwise we were faced
with an unaccountable infinity

we are thrown into awareness
there is no map
and no manual
all the rules are made up
you have to create your own path

the cosmology of the whole
is the logosphere of ideas
created from a limited perspective
where time meets meaning



we all serve great nature
in a process of reciprocal maintenance

freedom is real
in spite of all appearances

the opposite of time
is eternity
the opposite of space
is infinity

you can't know anything
can't control anything
can't tell anybody anything
all you have
is what's inside you
coursing through your blood
you have been ignoring
the great wealth
of impartial observation
beyond the labels
beyond the edifices of acculturation
beyond the babble of cognition
beyond the prejudices of opinion
abandon comfortable forms
do things differently
until you do it
you can't know it
plow the fields
weed the garden

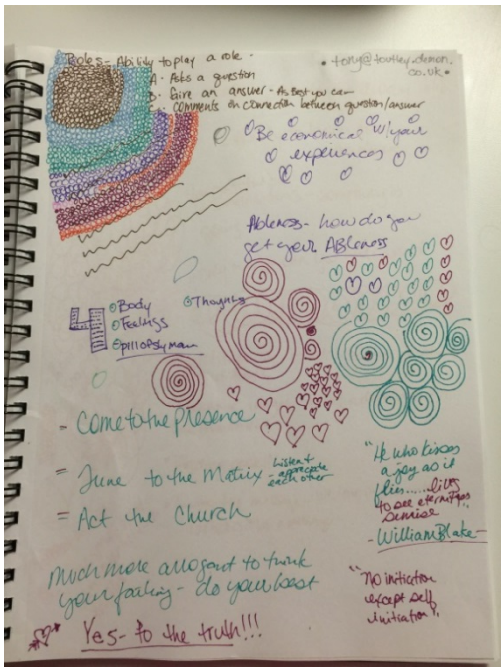
to come to a place of completion
will cost you everything

you can't know anything
can't control anything

Nashville October 30th – November 1st

explanations kill

music has an intimacy that can't be found in words



true understanding embraces the whole

the meta-theater of the mind
operates with multiple channels
with thoughts
feelings
and sensations
all stimulated independently

risk is the key
allow contradiction
open new doors
step into the unknown

if you want to play by the rules
this game is not for you

real understanding
disrupts the equilibrium
embraces new experiences
and creates different ways of describing

intelligence is in your ears
in your sex organs
in your skin
in your actions

feed your feelings
your thoughts
and your movements
not just your body

"Never do things like other people." the last words Gurdjieff's grandmother spoke to him.

the intellect
is a rusty machine
unable to perceive uncomfortable truth

we are imprisoned
in the dream
of the conditioned mind

think the unthinkable
unless a truth is in your bones
you don't get it

the school of ignorance
recognizes all truth is an error
all facts are fictions

if you can't use it
it will poison you

use your whole body
as an organ of perception

ordinary movements are a habit
repeating a repertoire of gestures
ordinary emotions are a habit
mired in reactivity
ordinary thinking is a habit
stuck in repetition
practice makes you a slave
to your slavery

exercise your awareness
invest in it

the burden of belief
is the illusion of existence

what you say
and what you do
typically have nothing to do with each other

the approach
is better than the arrival

expect the unexpected
pay attention to the gaps

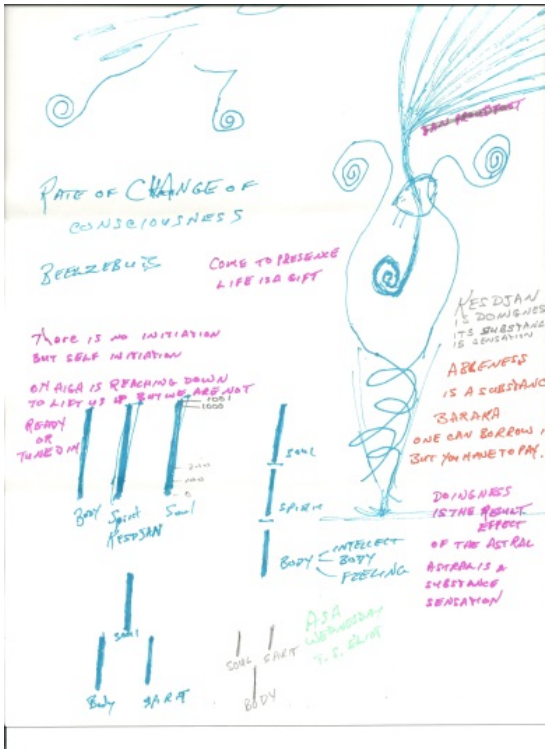
if you see something
you have to do something

the perfection of doing
is when the doer disappears
the doer eats the energy

yes but
        is the typical form of discourse
yes and
        amplifies the understanding

"Only that is true which everyone knows." Goethe

tune to the matrix
                listen
                        appreciate
                                come to presence



the condition of complete simplicity
costs not less than everything

there is no initiation
except self initiation

invite the unknown
to dwell amongst us

meaning happens in the gaps
between expectations and reality

feel the nothingness at the heart of your being
if you get depressed
you missed it

seek out the parts of yourself
you didn't know exist

understanding is lost
        in information
that which is ignored
        is the most precious part

books are agents of entropy

you can never be sure of anything

Recital of *Beelzebub's Tales*. Read by Anthony Blake. Musicians: Morgan Hartwyld, Darlene Franz, Kelly Fontes. November 1 st 2015 Nashville

Here comes everybody
James Joyce – Finnegans Wake

Here Comes Everybody: Joyce's Urban Chaosmos

Andy Merrifield, Fellow, Murray Edwards College, University of Cambridge

One of the great humanist visions of James Joyce's masterwork, *Finnegans Wake* [1939], is the *sigla* HCE, named after the book's fifty-something anti-hero, Dublin innkeeper Humphrey Chimpden Earwicker. Joyce homes in on one Saturday night, a single evening's sleep after a whole day's drinking, amid a thunderstorm, when Earwicker's disturbed mind tosses over, with bad conscience, the previous day's events and the whole of his life hitherto. Earwicker's is the "patternmind", Joyce says (1966: 70), of a complex dream language, a dream of a man dreaming a dream of the world. HCE are the "normative letters" of a constituency Joyce calls "*Here Comes Everybody*" (1992: 32), a "manyfeast munificent" (1966: 261), an archetypal image of our collective, desiring unconscious. But this dreamer is "more mob than man", Joyce tells us (1966: 261), "an imposing everybody he always indeed looked constantly the same as and equal to himself and magnificently well worthy of any and all such universalization" (1966: 32).

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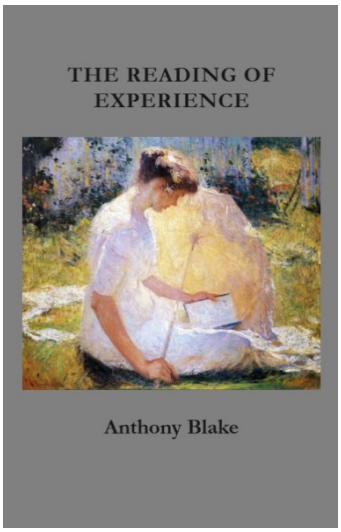

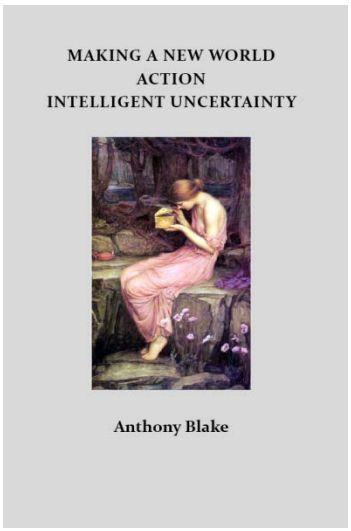

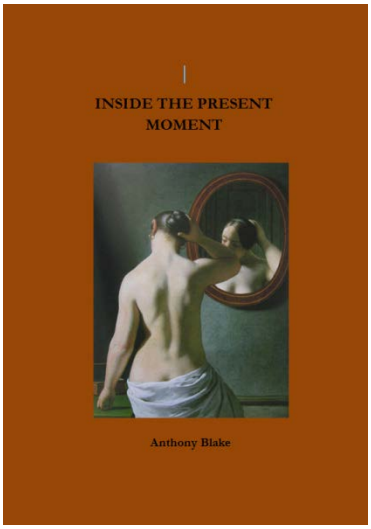

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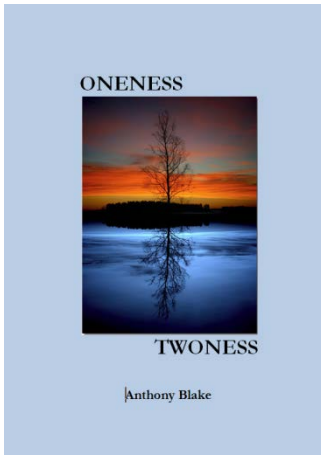

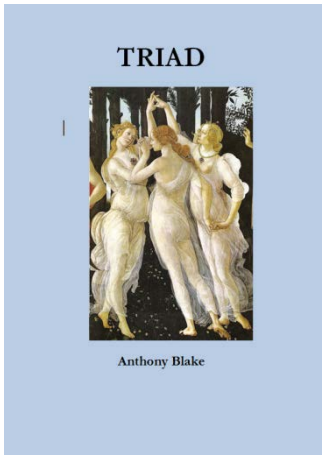

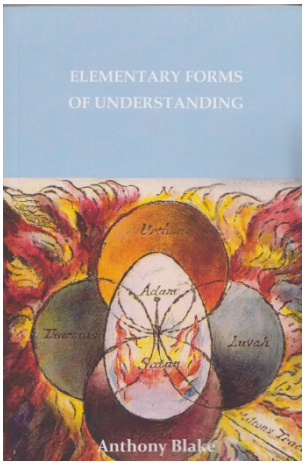

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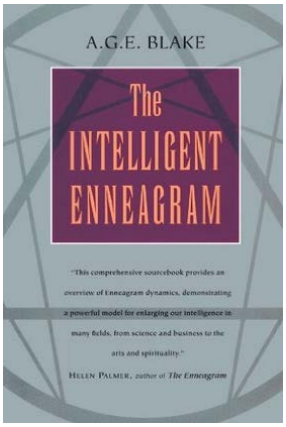

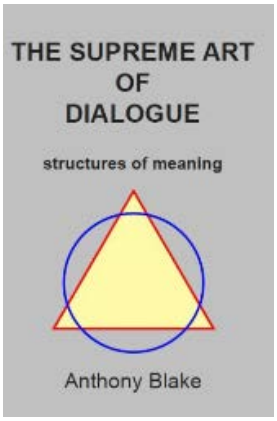

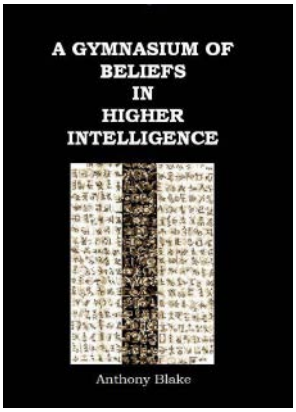

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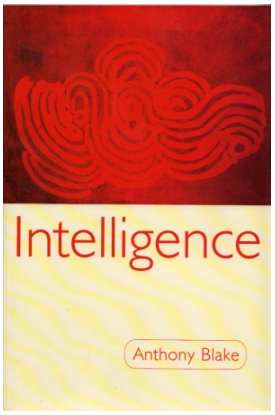

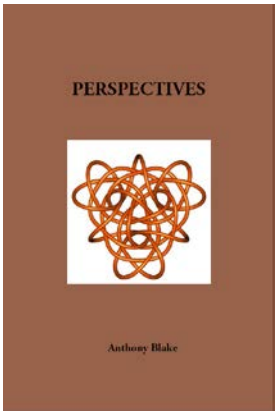

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